

North Carolina End-of-Grade (EOG) Test

Practice and Sample Test Workbook

Includes:

- **Grade 6 North Carolina Course of Study Content Standards**
- **Diagnostic Test**
- **Numerous Practice Questions for Each Content Standard**
- **Full-Size Sample Test**
- **Student Recording Chart**

Test-Taking Tips

- Go to bed early the night before the test. You will think more clearly after a good night's rest.
- Read each problem carefully and think about ways to solve the problem before you try to answer the question.
- Relax. Most people get nervous when taking a test. It's natural. Just do your best.
- Answer questions you are sure about first. If you do not know the answer to a question, skip it and go back to that question later.
- Think positively. Some problems may seem hard to you, but you may be able to figure out what to do if you read each question carefully.
- If no figure is provided, draw one. If one is furnished, mark it up to help you solve the problem.
- When you have finished each problem, reread it to make sure your answer is reasonable.
- Become familiar with a variety of formulas and when they should be used.
- Make sure that the number of the question on the answer sheet matches the number of the question on which you are working in your test booklet.

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Glencoe

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*North Carolina EOG Test
Practice and Sample Test Workbook, Grade 6*

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Overview

The material in this booklet is designed to help you prepare for the Grade 6 North Carolina End-of-Grade (EOG) Test.

It contains:

- a Student Recording Chart,
- the 1998 Standard Course of Study for Grade 6,
- a Diagnostic Test,
- practice for each Content Standard, and
- a Sample Test.

How to Use the Booklet

Diagnostic Test This test will help you identify any weaknesses you may have as you prepare to take the Grade 6 EOG Test. Once you've taken the test and it's been graded, complete the Student Recording Chart that is found on page vi. Mark an \times in the square for each question that you answered *incorrectly*.

Practice If you missed one or two of the questions for a particular content standard, you could probably use some extra practice with that content standard. The Student Recording Chart lists practice pages for each content standard. Complete the appropriate practice pages. If you are unsure about how to do some of the problems, you may want to refer to your mathematics book.

Sample Test After you have completed your practice worksheets, take the Sample Test on pages 101 to 116.

Student Recording Chart

Directions Mark an \times by each question from the Diagnostic Test that you answered *incorrectly*. If there are one or two \times s marked for a standard, write *Yes* in the *Need Practice?* box. Then complete the practice pages for that standard.

Competency Goal 1: Number Sense, Numeration, and Numerical Operations														
Standard	1.01	1.02	1.03	1.04	1.05	1.06	1.07	1.08	1.09	1.10	1.11	1.12	1.13	1.14
Test Questions	25 <input type="checkbox"/>	36 <input type="checkbox"/>	26 <input type="checkbox"/>	2 <input type="checkbox"/>	20 <input type="checkbox"/>	24 <input type="checkbox"/>	17 <input type="checkbox"/>	8 <input type="checkbox"/>	22 <input type="checkbox"/>	38 <input type="checkbox"/>	1 <input type="checkbox"/>	4 <input type="checkbox"/>	6 <input type="checkbox"/>	9 <input type="checkbox"/>
	40 <input type="checkbox"/>	73 <input type="checkbox"/>	60 <input type="checkbox"/> 65 <input type="checkbox"/>	48 <input type="checkbox"/>	46 <input type="checkbox"/>	44 <input type="checkbox"/>	58 <input type="checkbox"/>	70 <input type="checkbox"/>	27 <input type="checkbox"/>	51 <input type="checkbox"/>	75 <input type="checkbox"/>	52 <input type="checkbox"/>	23 <input type="checkbox"/>	68 <input type="checkbox"/>
Need Practice?														
Practice Pages	17	19	21	23	25	27	29	31	33	35	37	39	41	43
	18	20	22	24	26	28	30	32	34	36	38	40	42	44

Competency Goal 2: Spatial Sense, Measurement, and Geometry													
Standard	2.01	2.02	2.03	2.04	2.05	2.06	2.07	2.08	2.09	2.10	2.11	2.12	2.13
Test Questions	53 <input type="checkbox"/>	29 <input type="checkbox"/>	47 <input type="checkbox"/>	30 <input type="checkbox"/>	42 <input type="checkbox"/>	15 <input type="checkbox"/>	19 <input type="checkbox"/>	10 <input type="checkbox"/>	5 <input type="checkbox"/>	16 <input type="checkbox"/>	3 <input type="checkbox"/>	18 <input type="checkbox"/>	14 <input type="checkbox"/>
		33 <input type="checkbox"/> 64 <input type="checkbox"/>	56 <input type="checkbox"/>	62 <input type="checkbox"/>		63 <input type="checkbox"/>	39 <input type="checkbox"/>	67 <input type="checkbox"/>	43 <input type="checkbox"/>	35 <input type="checkbox"/>	54 <input type="checkbox"/>	76 <input type="checkbox"/>	74 <input type="checkbox"/>
Need Practice?													
Practice Pages	45	47	49	51	53	55	57	59	61	63	65	67	69
	46	48	50	52	54	56	58	60	62	64	66	68	70

Competency Goal 3: Patterns Relationships, and Functions						
Standard	3.01	3.02	3.03	3.04	3.05	3.06
Test Questions	13 <input type="checkbox"/> 57 <input type="checkbox"/>	55 <input type="checkbox"/> 71 <input type="checkbox"/>	31 <input type="checkbox"/> 66 <input type="checkbox"/>	34 <input type="checkbox"/> 61 <input type="checkbox"/>	45 <input type="checkbox"/> 77 <input type="checkbox"/>	12 <input type="checkbox"/> 28 <input type="checkbox"/>
Need Practice?						
Practice Pages	71, 72	73, 74	75, 76	77, 78	79, 80	81, 82

Competency Goal 4: Data, Probability, and Statistics									
Standard	2.01	2.02	2.03	2.04	2.05	2.06	2.07	2.08	2.09
Test Questions	53 <input type="checkbox"/>	29 <input type="checkbox"/>	47 <input type="checkbox"/>	30 <input type="checkbox"/>	42 <input type="checkbox"/>	15 <input type="checkbox"/>	19 <input type="checkbox"/>	10 <input type="checkbox"/>	5 <input type="checkbox"/>
		33 <input type="checkbox"/>	56 <input type="checkbox"/>	62 <input type="checkbox"/>		63 <input type="checkbox"/>	39 <input type="checkbox"/>	67 <input type="checkbox"/>	43 <input type="checkbox"/>
Need Practice?									
Practice Pages	83	85	87	89	91	93	95	97	99
	84	86	88	90	92	94	96	98	100

North Carolina 1998 Standard Course of Study Grade 6

Competency Goals and Objectives	
COMPETENCY GOAL 1: Number Sense, Numeration, and Numerical Operations	
1.01	Read, write and make models of numbers including percents and exponentials.
1.02	Relate fractions, decimals, and percents.
1.03	Compare and order fractions, decimals, and percents.
1.04	Multiply and divide fractions, mixed numbers, and decimals using models and pictures; record solution.
1.05	Multiply and divide fractions, mixed numbers, and decimals.
1.06	Add and subtract fractions and mixed numbers with unlike denominators.
1.07	Use estimation and mental math to solve problems with fractions, decimals, and percents; explain solution.
1.08	Solve problems using prime factorization, common factors, and common multiples. Explain solutions.
1.09	Use models and pictures to relate concepts of ratio, proportion, and percent; record results.
1.10	Use models and pictures to demonstrate understanding of integers. Record results.
1.11	Compare and order integers.
1.12	Use the order of operations to simplify numerical expressions with parentheses and exponents.
1.13	Translate word problems into number sentences and solve. Explain solutions.
1.14	Analyze problem situations, determine if there is sufficient information to solve the problem, identify missing or extraneous data, select appropriate strategies, and use an organized approach to solve multi-step problems; use calculators when appropriate.
COMPETENCY GOAL 2: Spatial Sense, Measurement, and Geometry	
2.01	Construct congruent segments, congruent angles, bisectors of line segments and bisectors of angles.
2.02	Define and identify interior, exterior, complementary, and supplementary angles and pairs of lines including skew lines.
2.03	Define and identify alternate interior, alternate exterior, corresponding and vertical angles.
2.04	Identify and distinguish among similar, congruent and symmetric figures; name corresponding parts.
2.05	Locate, give the coordinates of, and graph plane figures which are the results of translations or reflections in the first quadrant.
2.06	Investigate and determine the relationship between the diameter and circumference of a circle and the value of pi; calculate the circumference of a circle.

2.07	Identify the relationship between areas of triangles and rectangles with the same base and height.
2.08	Use models to develop formulas for finding areas of triangles, parallelograms, and circles.
2.09	Calculate areas of triangles, parallelograms, and circles.
2.10	Model the concept of volume for rectangular solids as the product of the area of the base and the height.
2.11	Convert measures of length, area, capacity, weight and time expressed in a given unit to other units in the same measurement system.
2.12	Estimate solutions to problems involving geometry and measurement. Determine when estimates are sufficient for the measurement situation.
2.13	Analyze problem situations, select appropriate strategies, and use an organized approach to solve non-routine and increasingly complex problems involving geometry and measurement. Use technology as appropriate.
COMPETENCY GOAL 3: Patterns, Relationships, and Functions	
3.01	Describe, extend, and write rules for a variety of patterns.
3.02	Generate a set of ordered pairs using a given rule which is stated verbally or algebraically.
3.03	Given a group of ordered pairs, identify either verbally or algebraically the rule used to generate them and record results.
3.04	Use variables to describe numerical expressions and relationships.
3.05	Use graphs and tables to represent ordered pairs; describe the relationship; recognize both linear and nonlinear relationships.
3.06	Identify and use patterning as a strategy to solve problems.
COMPETENCY GOAL 4: Data, Probability, and Statistics	
4.01	Create and evaluate graphic representations of data.
4.02	Analyze data using spreadsheets.
4.03	Locate points in all quadrants of the coordinate plane using ordered pairs.
4.04	Use measures of central tendency to compare two sets of data.
4.05	Construct convincing arguments based on analysis of data and interpretation of graphs.
4.06	Design an experiment to test a theoretical probability; record and explain results.
4.07	Make predictions based on the probabilities of simple events.
4.08	Use inductive and deductive reasoning to solve problems.
4.09	Analyze problem situations, use an organized approach, and select appropriate strategies and technology to solve problems involving probability and statistics.

Diagnostic Test

Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

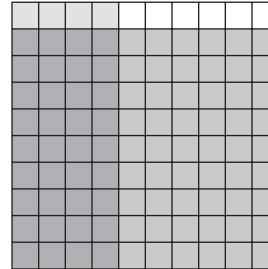
- 1** The table shows the minimum surface temperature of four planets. Which list shows the planets in order of temperatures from least to greatest? **1.11**

Planet	Temperature (°C)
Mars	-187
Mercury	-210
Pluto	-233
Saturn	-178

- A** Pluto, Mercury, Mars, Saturn
B Saturn, Mars, Mercury, Pluto
C Mars, Saturn, Mercury, Pluto
D Pluto, Mercury, Saturn, Mars

1 _____

- 2** The model shows 0.4×0.9 . Which is the product? **1.04**



- A** 0.036
B 0.36
C 3.6
D 36

2 _____

- 3** White whales can weigh up to 120,000 pounds. How many tons is this? **2.11**

- A** 6
B 60
C 600
D 6,000

3 _____

- 4** What is the value of $28 \div 4(7 - 2)^2$? **1.12**

- A** 0.28
B 21
C 45
D 175

4 _____

- 5** A flying disc has a diameter of 14 inches. What is the approximate area of the disc? **2.09**

- A** 44 in^2
B 88 in^2
C 154 in^2
D 616 in^2

5 _____

- 6** Samantha has 36 seashells that she collected from a trip to Cape Lookout National Seashore. There are twice as many whelks as there are conch shells. How many whelks does she have? **1.13**

- A** 9
B 12
C 18
D 24

6 _____



Diagnostic Test (continued)

Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 7 A doctor's office opened its doors to 10 patients at 9:00 A.M. An hour later, twice as many patients arrived. At 11:00 A.M., 12 more patients showed up, but half of the other patients left. How many patients were left in the doctor's office? **4.08**

A 15 B 21
C 27 D 42

7 _____

- 8 Jeremy is organizing his CD collection. He has 16 rock CDs, 12 rap CDs, and 20 classical CDs. If he wants to group the CDs so that each group contains the same number of rock, rap, and classical, what is the *greatest* number of groups that he could make? **1.08**

A 2 B 4
C 5 D 8

8 _____

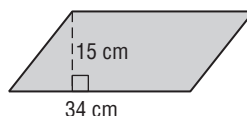
- 9 Nell bought a swimsuit on sale for 25% off the original price. If the original price was \$32, what was the sale price of the swimsuit before tax? **1.14**

A \$57 B \$40
C \$24 D \$8

9 _____

- 10 What is the area of the parallelogram? **2.08**

A 83 cm^2
B 98 cm^2
C 255 cm^2
D 510 cm^2



10 _____

- 11 A box contains 4 blue chips, 8 yellow chips, and some green chips. If the probability of selecting a green chip is $\frac{1}{7}$, how many green chips are in the box? **4.07**

A 1 B 2
C 7 D 9

11 _____

- 12 A pretzel stand at the state fair sells 3 pretzels for \$6.75, 6 for \$13.50, and 9 for \$20.25. What is the *most likely* cost for 15 pretzels? **3.06**

A \$27.00 B \$33.75
C \$40.50 D \$46.75

12 _____



Diagnostic Test (continued)

Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 13** Which number comes next in the pattern? **3.01**

13 _____

17, 21, 25, 29, _____

- A** 31 **B** 32
C 33 **D** 34

- 14** Alicia wants to refinish the hardwood floors in the dining room. The dimensions of the dining room are 12 feet by 10 feet and a contractor estimated a cost of \$12 per square foot to do the job. If Alicia has \$1,500 to spend, does she have enough to refinish the floor? **2.13**

14 _____

- A** Yes, because $12 \times 10 \times 12 = 1,440$
B Yes, because $12 \times 10 + 12 = 132$
C No, because $144 \times 100 + 12 = 14,412$
D No, because 120 is more than 12

- 15** The opening of a garden hose is 3 centimeters wide. What is the circumference of the opening to the nearest tenth centimeter? **2.06**

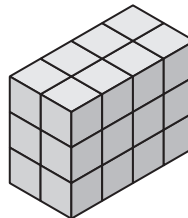
15 _____

- A** 7.1 cm **B** 9.4 cm
C 18.8 cm **D** 28.3 cm

- 16** What is the volume of the figure? **2.10**

16 _____

- A** 8 units³
B 12 units³
C 24 units³
D 26 units³



- 17** In a show of hands, 11 out of 42 students in a health class said they had been skiing at Sapphire Valley. *About* what percent of the students raised their hands? **1.07**

17 _____

- A** 10% **B** 15%
C 20% **D** 25%

- 18** A box has a shipping limit of 40 pounds. If a factory wants to ship toys that weigh 0.75 of a pound each, how many can they fit in a box? **2.12**

18 _____

- A** 52 **B** 53
C 54 **D** 55



Diagnostic Test (continued)

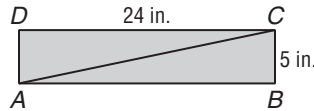
Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 19** What is the area of $\triangle ABC$? **2.07**

A 30 in^2
B 60 in^2
C 120 in^2
D 240 in^2



19 _____

- 20** What is $\frac{1}{4} \div \frac{1}{2}$? **1.05**

A 8
B 2
C $\frac{1}{2}$
D $\frac{1}{8}$

20 _____

- 21** Northwoods Middle School is selling school sweatshirts to raise funds to buy a new sound system for the auditorium. The table shows the number of student orders for two days. The school predicts it will sell 150 sweatshirts. Based on the prediction and the data in the table, about how many students can be expected to buy a large sweatshirt? **4.09**

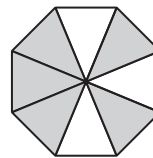
Size	Number of Orders
small	8
medium	14
large	18

A 30
B 68
C 90
D 102

21 _____

- 22** If the ratio of shaded parts of the figure to the total number of parts is 5 to 8, what is the percent of shaded parts to total parts? **1.09**

A 40%
B 58%
C 62.5%
D 85%



22 _____

- 23** Sheldon can read 3 pages of his history book in 40 minutes. How many pages can he read in 200 minutes? **1.13**

A 12
B 15
C 18
D 21

23 _____

- 24** What is $4\frac{1}{4} - 2\frac{3}{8}$? **1.06**

A $1\frac{7}{8}$
B $2\frac{1}{8}$
C $2\frac{1}{4}$
D $6\frac{5}{8}$

24 _____



Diagnostic Test (continued)**Test Practice**

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 25** How do you read 1.019? **1.01**

25 _____

- A** one and nineteen hundredths
B one hundred and nineteen hundredths
C one and one hundredths nineteen
D one and nineteen thousandths

- 26** Which of the following numbers is *less* than the number shown on the calculator display? **1.03**

2.108

26 _____

- A** 2.801
B 2.180
C 2.110
D 2.089

- 27** Which proportion shows the ratio of dotted stars to the total number of stars? **1.09**



27 _____

- A** $\frac{8}{12} = \frac{2}{3}$
B $\frac{8}{12} = \frac{4}{3}$
C $\frac{8}{4} = \frac{2}{1}$
D $\frac{4}{8} = \frac{1}{2}$

- 28** Two tickets to a ham fest in Shelby cost \$14.50, four tickets cost \$29.00, and six tickets cost \$43.50. What is the most likely cost of 14 tickets?

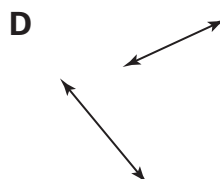
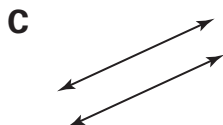
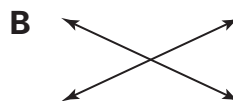
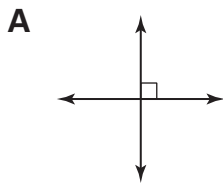
28 _____

- A** \$58.00
B \$72.50
C \$87.00
D \$101.50

3.06

- 29** Which pair of lines are parallel? **2.02**

29 _____



Go on 

Diagnostic Test (continued)

Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

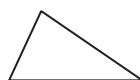
30 Which triangle appears to be congruent to the one shown? **2.04**

30 _____

A



B



C



D



31 Which expression should go at the top of the second column in the table? **3.03**

31 _____

A $m + 1$

B $m \times 2$

C $(m + 1) \times 2$

D $(m \times 3) - 1$

m	?
1	2
3	8
4	11
6	17
10	29

32 A random survey of 500 people in North Carolina showed that 80 had taken a trip to the Great Smoky Mountains National Park within a year or less. In a random survey of 200 North Carolinians, how many could be predicted to have taken a trip to the Great Smoky Mountains within a year or less? **4.07**

32 _____

A 16

B 32

C 48

D 80

33 If the measure of an angle is 49° , what is the measure of its complement? **2.02**

33 _____

A 41°

B 131°

C 139°

D 180°

34 Six friends rented a canoe for a trip down the Catawba River. They plan to split the costs of the trip equally. If c represents the cost of the trip, which expression could be used to find the cost per person? **3.04**

34 _____

A $6 \times c$

B $6 \div c$

C $c \div 6$

D $c + 6$

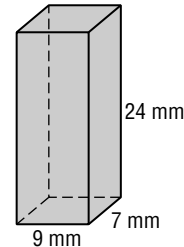


Diagnostic Test (continued)**Test Practice**

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 35** What is the volume of the rectangular box? **2.10**

A 320 mm^3
B 384 mm^3
C 894 mm^3
D $1,512 \text{ mm}^3$



35 _____

- 36** A seafood dish contains scallops, shrimp, and mussels. Of the 25 pieces of seafood, 8 are scallops. What percent of the seafood in the dish are scallops? **1.02**

A 32%
B 25%
C 17%
D 8%

36 _____

- 37** Duncan is using the spreadsheet below to monitor his progress on a treadmill at the gym. What is the relationship between the time he spends on the treadmill and the number of Calories that he burns? **4.02**

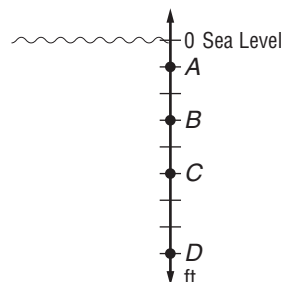
	A	B
1	Number of Minutes	Calories Burned
2	3	27
3	4	36
4	5	45
5	6	54

A For every 3 minutes on the treadmill, he burns 54 Calories.
B For every 3 minutes on the treadmill, he burns 27 Calories.
C For every 3 minutes on the treadmill, he burns 9 Calories.
D For every 3 minutes on the treadmill, he burns 3 Calories.

37 _____

- 38** The figure shows depths beneath the surface of the ocean. If each interval on the scale represents 5 feet, at what depth is a diver if he is at point *B* on the scale? **1.10**

A -30 ft
B -25 ft
C -20 ft
D -15 ft



38 _____

Go on

Diagnostic Test (continued)

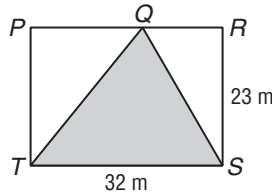
Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 39** What is the area of $\triangle QST$? **2.07**

A 55 m^2
B 110 m^2
C 368 m^2
D 736 m^2



39 _____

- 40** The seasonal attendance at stock car races in Rockingham was approximately 10,000. Which shows 10,000 in exponential notation?

A 10^3 **B** 10^4 **C** 10^5 **D** 10^6 **1.01**

40 _____

- 41** What is the difference in *mode* between the two sets of data? **4.04**

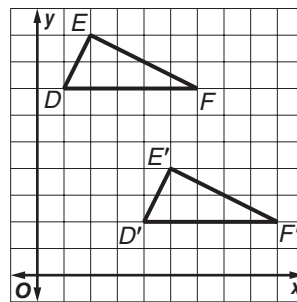
15, 34, 21, 28, 15, 19, 15
 23, 62, 18, 23, 17, 15, 24

A 4 **B** 5 **C** 8 **D** 28

41 _____

- 42** Which of the following describes the transformation of $\triangle DEF$ to $\triangle D'E'F'$? **2.05**

A 3 units right, 5 units down
B 2 units left, 5 units up
C 5 units left, 3 units up
D 5 units right, 3 units down



42 _____

- 43** What is the area of a triangle that has a base of 18 yards and a height of 12 yards? **2.09**

A 54 yd^2 **B** 108 yd^2
C 162 yd^2 **D** 216 yd^2

43 _____

- 44** It took Breanna $4\frac{1}{2}$ hours to paddle downstream on the Cape Fear River and $6\frac{1}{8}$ hours to paddle upstream. What is the difference in hours between the two trips? **1.06**

A $\frac{5}{8} \text{ h}$ **B** $1\frac{5}{8} \text{ h}$
C $2\frac{3}{8} \text{ h}$ **D** $10\frac{5}{8} \text{ h}$

44 _____

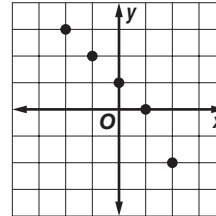


Diagnostic Test (continued)**Test Practice**

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

45 Which of the following describes the graph? **3.05**

- A** a nonlinear relationship in which the x and y values do not form a pattern
- B** a nonlinear relationship in which y values increase by 1 or 2 for every increase in x
- C** a linear relationship in which the y values decrease by 1 as the x values increase by 1
- D** a linear relationship in which the x values decrease by 1 as the y values increase by 1



45 _____

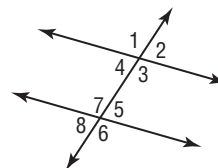
46 Mrs. Japlenko bought $8\frac{1}{2}$ ounces of basil leaves for \$2.72. What was the cost of the basil leaves per ounce? **1.05**

- A** \$0.17
- B** \$0.32
- C** \$1.70
- D** \$3.20

46 _____

47 Which two angles are corresponding angles? **2.03**

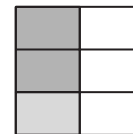
- A** $\angle 1$ and $\angle 2$
- B** $\angle 2$ and $\angle 5$
- C** $\angle 4$ and $\angle 7$
- D** $\angle 5$ and $\angle 8$



47 _____

48 Blair used the model to find $\frac{2}{3} \times \frac{1}{2}$. Which of the following is the product? **1.04**

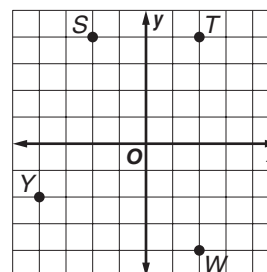
- A** $\frac{1}{6}$
- B** $\frac{1}{3}$
- C** $\frac{1}{2}$
- D** $\frac{2}{3}$



48 _____

49 Which point is located at $(-2, 4)$? **4.03**

- A** S
- B** T
- C** W
- D** Y



49 _____

Go on

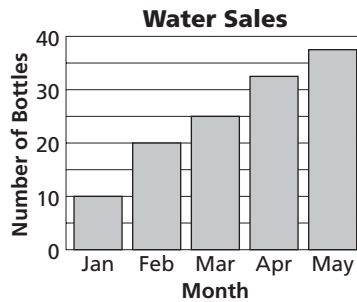
Diagnostic Test (continued)

Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

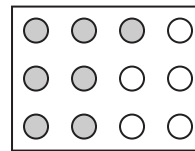
- 50** The bar graph shows the number of bottles of water sold at the school store from January to May. The greatest increase in sales is between which two months? **4.01**



50 _____

- A** April and May
B March and April
C February and March
D January and February

- 51** If shaded counters represent negative integers and non-shaded counters represent positive integers, which integer is represented on the mat? **1.10**



51 _____

- A** -7
B -5
C -2
D 5

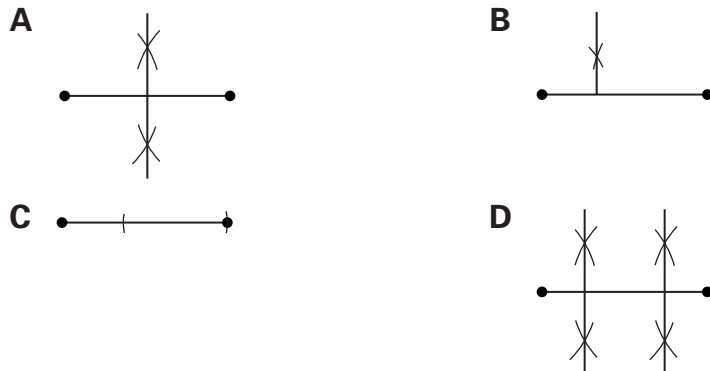
- 52** What is the value of $7(5 + 3) + 81 \div 3^4$? **1.12**

52 _____

- A** 39
B 55
C 56
D 57

- 53** Which line segment is correctly bisected? **2.01**

53 _____



- 54** A playing field at Celina's school is 18 yards in length. How long is the playing field in feet? **2.11**

54 _____

- A** 6 ft
B 9 ft
C 36 ft
D 54 ft



Diagnostic Test (continued)

Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 55** If the second number in an ordered pair is 3 more than the first, what ordered pair would continue the pattern below? **3.02**

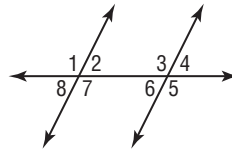
(9, 12), (13, 16), (16, 19), _____?

- A** (17, 22)
B (21, 24)
C (22, 26)
D (24, 29)

55 _____

- 56** Which describes $\angle 1$ and $\angle 7$? **2.03**

- A** vertical angles
B corresponding angles
C alternate interior angles
D alternate exterior angles



56 _____

- 57** Which fraction comes next in the sequence? **3.01**

$\frac{2}{3}$, 1, $\frac{4}{3}$, $\frac{5}{3}$, 2, _____?

- A** $\frac{6}{3}$
B $\frac{7}{3}$
C $\frac{8}{3}$
D 3

57 _____

- 58** Nine out of 31 students in a history class had visited the Ocracoke lighthouse. *About* what percent of the students saw the lighthouse? **1.07**

- A** 9%
B 10%
C 30%
D 40%

58 _____

- 59** The box shows the points scored by a basketball team for the first 6 games of the season. **4.04**

82, 77, 93, 79, 84, 95

If the team scores 80 and 82 in the next two games, what effect will the scores have on the *median* score of the games in the box?

- A** The median will stay the same at 83.
B The median will increase by one point from 83 to 84.
C The median will increase by two points from 83 to 85.
D The median will drop one point from 83 to 82.

59 _____

Go on

Diagnostic Test (continued)**Test Practice**

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 60** The table shows the number of yards of fabric Wilson needs to make shirts for 4 members of the drill team. Which student requires the *greatest* yards of fabric for a shirt? **1.03**

A Mitchell
B Kelly
C Reid
D Lewis

Student	Fabric (yd)
Mitchell	$1\frac{5}{6}$
Kelly	$1\frac{7}{8}$
Reid	$1\frac{4}{5}$
Lewis	$1\frac{7}{9}$

60 _____

- 61** Doug rented a backhoe to clear some brush off his property. The cost to rent the backhoe is \$120 plus \$115 per day. If d represents days, which expression can Doug use to determine the cost of renting the backhoe for d days? **3.04**

A $120 + 115d$
B $d(120 + 115)$
C $d - (120 + 115)$
D $120d + 115$

61 _____

- 62** Which figure has more than one line of symmetry? **2.04**

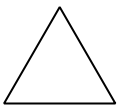
A



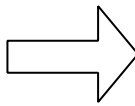
B



C



D



62 _____

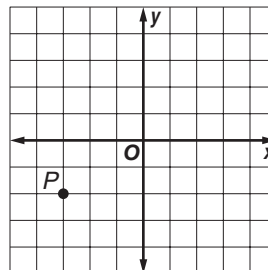
- 63** The diameter of a circle is 16 meters. What is the circumference of the circle to the nearest whole number? **2.06**

A 50 m
B 100 m
C 201 m
D 804 m

63 _____

- 64** Which ordered pair names point P ? **2.02**

A (3, 2)
B (-3, 2)
C (-3, -2)
D (3, -2)



64 _____



Diagnostic Test (continued)**Test Practice**

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 65** If $\triangle ABC$ is reflected over line t , what will be the coordinates of the reflection $\triangle A'B'C'$?

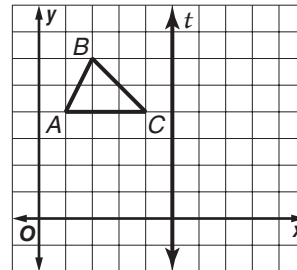
A $A'(5, 5)$, $B'(6, 7)$, $C'(8, 5)$

1.03

B $A'(6, 5)$, $B'(7, 7)$, $C'(6, 9)$

C $A'(9, 4)$, $B'(8, 6)$, $C'(6, 4)$

D $A'(7, 7)$, $B'(8, 5)$, $C'(6, 5)$



65 _____

- 66** Which describes the relationship among the ordered pairs? **3.03**

66 _____

$(4, 6)$, $(6, 10)$, $(8, 14)$, $(9, 16)$, $(12, 22)$

A The y -coordinate is twice the x -coordinate minus 2.

B The y -coordinate is 2 more than the x -coordinate.

C The y -coordinate is one half the x -coordinate plus 4.

D The y -coordinate is 3 times the x -coordinate minus 6.

- 67** What is the approximate area of the circle? Use 3.14 for π . **2.08**

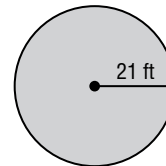
67 _____

A 132 ft^2

B 264 ft^2

C $1,385 \text{ ft}^2$

D $8,316 \text{ ft}^2$



- 68** What information is *not* necessary to solve the problem below? **1.14**

68 _____

American alligators can run on their toes at speeds up to 30 miles per hour over short distances. Sometimes they vault vertically 5 feet out of the water to catch a bird. If there are 5,280 feet in a mile, how long would it take an alligator to reach a tourist standing 60 feet away?

A The speed at which alligators can run in short bursts.

B The distance the tourist is standing from the alligator.

C The distance an alligator can vault out of the water.

D The number of feet in a mile.

Go on

Diagnostic Test (continued)

Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 69** Dyan can choose 2 electives for her school schedule next year. She must choose a fine arts class and a physical education class. Dyan looked through the school's course catalog and made a list of 4 different fine arts classes and 3 different physical education classes that she is interested in taking. How many elective combinations are possible from Dyan's list? **4.09**

A 4
B 7
C 12
D 24

69 _____

- 70** A short tour of old homes in Beaufort departs every 8 minutes. A long tour of the homes departs from the same location every 12 minutes. How often do the tours depart at the same time? **1.08**

A Every 4 minutes since 4 is a factor of 8 and 12.
B Every 20 minutes since $8 + 12 = 20$.
C Every 96 minutes since $2 \times 2 \times 2 \times 2 \times 2 \times 3$ is the prime factorization of 8 and 12.
D Every 24 minutes since 24 is a common multiple of 8 and 12.

70 _____

- 71** In which set of ordered pairs is the y -coordinate the result of using the rule $4x$? **3.02**

A (0, 4), (1, 5), (3, 7), (5, 9)
B (1, 5), (5, 9), (9, 13), (13, 17)
C (4, 1), (8, 2), (12, 3), (16, 4)
D (0, 0), (2, 8), (4, 16), (6, 24)

71 _____

- 72** The stem-and-leaf plot gives the ages of people who signed up for a self-defense course at a community center. Which age group was most represented? **4.01**

A 10 to 18
B 19 to 25
C 26 to 35
D over 35

Stem	Leaf
1	1 2 9
2	3 5 8
3	0 1 2 2
4	3 6 8 8
$4 3 = 43$	

72 _____

- 73** In a body surfing contest, $\frac{3}{5}$ of the contestants were eliminated after the first round. What percent of the contestants failed to make it to the second round of contests? **1.02**

A 3.5%
B 6%
C 35%
D 60%

73 _____



Diagnostic Test (continued)

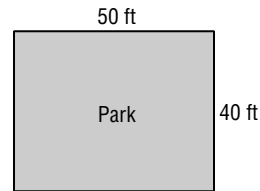
Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 74** Ronnie walks her dog around the park 5 times a day, 7 days a week. How many *miles* does she walk her dog each week? **2.13**

A 1.2 mi
B 1.3 mi
C 9 mi
D 90 mi



74 _____

- 75** The table shows the melting points of four elements. Which shows the elements in order from least to greatest melting point? **1.11**

A nitrogen, argon, krypton, xenon
B nitrogen, krypton, argon, xenon
C xenon, krypton, argon, nitrogen
D xenon, argon, krypton, nitrogen

Element	Melting Point (°C)
argon	-189
krypton	-157
nitrogen	-210
xenon	-112

75 _____

- 76** Tia is using a container that holds 735 milliliters of water to fill an aquarium that holds 41 liters of water. *About* how many containers of water will it take to fill the aquarium? **2.12**

A 20 to 30
B 35
C 40 to 50
D more than 50

76 _____

- 77** Which equation describes the relationship between x and y in the table? **3.05**

A $y = x + 4$
B $y = x - 4$
C $y = x + 2$
D $y = x \times 5$

x	y
-1	3
1	5
3	7
12	16
19	23

77 _____

- 78** Which number has the following characteristics? **4.08**

It is a multiple of 9.
 The hundreds digit is odd and the ones digit is even.
 The tens digit is 1 less than the ones digit.

A 529
B 549
C 639
D 756

78 _____



Diagnostic Test (continued)

Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 79** Khadijah is testing a number cube to see if it is fair. The table shows the results of 100 trials. Which of the following *best* explains these results?

79 _____

Number on Cube	1	2	3	4	5	6
Number of Times	19	14	16	13	18	20

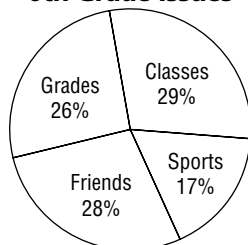
4.06

- A** The number of times each number came up is close to the theoretical probability of $\frac{1}{6}$, so the number cube is fair.
- B** Since each of the numbers did not come up an equal number of times, the number of trials is too low to determine if the number cube is fair.
- C** Since each of the numbers did not come up an equal number of times, Khadijah must have recorded the trials incorrectly.
- D** Since each of the numbers did not come up an equal number of times, the number cube must not be fair.

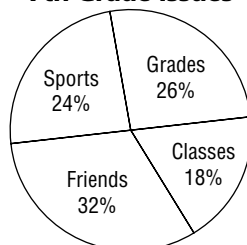
- 80** The circle graphs show the results of a poll of 6th and 7th grade students. The students were asked to name their most important school issue. According to the circle graphs, which of the following is a true statement? **4.05**

80 _____

6th Grade Issues



7th Grade Issues



- A** More 6th grade students than 7th grade students are concerned about school sports.
- B** Friendship was named as the most important issue for both 6th and 7th grade students.
- C** Grades and friends are the top concerns of both 6th grade students and 7th grade students.
- D** The classes they take is the biggest issue for most 6th grade students and the least issue for most 7th grade students.



Standards Practice

Objective 1.01

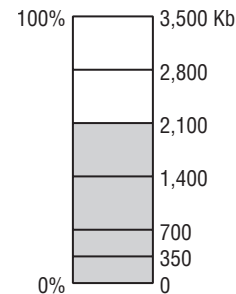


Read, write and make models of numbers including percents and exponentials.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** Chad is downloading a 3,500-kilobyte file from the Internet. After 6 minutes, he had downloaded 2,100 kilobytes of the file. What percent of the file had Chad downloaded?

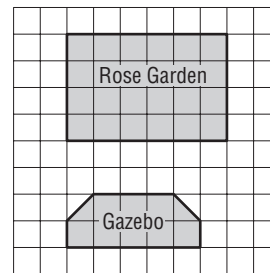
A 80%
B 60%
C 40%
D 20%



1 _____

- 2** The hundredths grid represents one section of an arboretum. What percent represents the area covered by the rose garden?

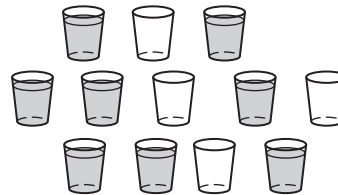
A 2.4%
B 3.8%
C 24%
D 38%



2 _____

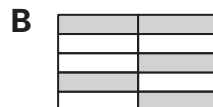
- 3** Savannah is filling cups with punch at open house. What fraction of the cups contain punch?

A $\frac{1}{4}$ **B** $\frac{1}{3}$
C $\frac{2}{3}$ **D** $\frac{3}{4}$



3 _____

- 4** Which model shows $\frac{2}{5}$ of the figure shaded?



4 _____

Standards Practice

Objective 1.01 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 5 How would you read 2.9123? 5 _____
- A two and nine thousand one hundred twenty-three ten-thousandths
 - B two and nine thousand one hundred twenty-three thousandths
 - C two and nine thousand one hundred twenty-three hundred thousandths
 - D two and nine thousand one hundred twenty-three hundredths
- 6 A layer on a CD is twelve hundredths of a centimeter thick. Which of the following shows the thickness as a decimal? 6 _____
- A 0.0012 cm
 - B 0.012 cm
 - C 0.12 cm
 - D 12.00 cm
- 7 What is another way of expressing 8^6 ? 7 _____
- A 8×6
 - B $6 \times 6 \times 6 \times 6 \times 6 \times 6 \times 8$
 - C $8 + 6$
 - D $8 \times 8 \times 8 \times 8 \times 8 \times 8$
- 8 Maria handed out 125 flyers that gave students the time and location of try outs for the school volleyball team. What is 125 written in exponential notation? 8 _____
- A 3^5
 - B 5^3
 - C 12^5
 - D 25^5
- 9 The Mountains-to-Sea trail in North Carolina will stretch about 10^3 miles from the Great Smoky Mountains National Park to the Outer Banks. Which of the following represents the distance in standard notation? 9 _____
- A 30 mi
 - B 100 mi
 - C 1,000 mi
 - D 3,000 mi

Standards Practice

Objective 1.02



Relate fractions, decimals, and percents.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** Pablo answered 20 out of 25 questions correctly on his science test. What percent of questions did he answer correctly?

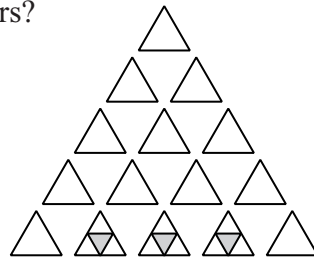
1 _____

A 95%
B 80%
C 45%
D 20%

- 2** What percent of the triangles have shaded centers?

2 _____

A 3%
B 5%
C 10%
D 20%



- 3** State sales tax in North Carolina is 7%. Which fraction is equivalent to 7%?

3 _____

A $\frac{7}{10}$
B $\frac{7}{100}$
C $\frac{7}{70}$
D $\frac{7}{1,000}$

- 4** Francesca read that about 97% of the water on Earth is saltwater. What is the decimal equivalent of 97%?

4 _____

A 0.0097
B 0.097
C 0.97
D 9.7

- 5** Jan bought a book at a flea market and later sold it on the Internet for 2.45 times its original price. What is the percent equivalent of 2.45?

5 _____

A 0.245%
B 2.45%
C 24.5%
D 245%

Standards Practice

Objective 1.02 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** The students in Mr. Thigpen's class voted on the type of pizza that they wanted to order for the class party. Seven out of 25 students voted for a spinach and tomato pizza. What percent of the class voted for spinach and tomato? **6** _____
- A** 28%
B 25%
C 7%
D 2.8%
- 7** Which decimal is equivalent to $\frac{17}{20}$? **7** _____
- A** 0.085
B 0.017
C 0.17
D 0.85
- 8** A student newspaper claimed that 0.5% of the student body was absent on a snow makeup day. What fraction of the student body was absent? **8** _____
- A** $\frac{1}{2}$
B $\frac{1}{20}$
C $\frac{1}{200}$
D $\frac{1}{2,000}$
- 9** The number of students who ride the bus to a middle school in Charlotte is $1\frac{1}{4}$ times the number of students who walk. What is the decimal form of $1\frac{1}{4}$? **9** _____
- A** 1.40
B 1.25
C 1.14
D 1.10
- 10** In Mr. Singh's class, 80% of the students said they intended to go to the state fair. Which fraction is equivalent to 80%? **10** _____
- A** $\frac{7}{8}$
B $\frac{5}{6}$
C $\frac{4}{5}$
D $\frac{3}{4}$

Standards Practice

Objective 1.03



Compare and order fractions, decimals, and percents.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 Which of the following numbers is *greater* than the number shown on the calculator display?

7.089

1 _____

- A 7.009
- B 7.080
- C 7.088
- D 7.890

- 2 The table shows the number of ounces of spices Katrina used to make a spice mixture. Which is the *least* number?

Spice	Amount (ounces)
basil	1.05
marjoram	1.005
oregano	1.5
thyme	1.025

2 _____

- A 1.05
- B 1.005
- C 1.5
- D 1.025

- 3 The crimson topaz hummingbird lives in the rain forests of South America. This relatively large hummingbird weighs between $\frac{3}{8}$ and $\frac{9}{16}$ ounce. Which is a possible weight for the hummingbird?

3 _____

- A $\frac{2}{5}$ oz
- B $\frac{3}{4}$ oz
- C $\frac{4}{7}$ oz
- D $\frac{5}{6}$ oz

- 4 The table shows the number of miles each student walks to school. Which is the *greatest* number of miles?

Student	Distance (mi)
Andie	$1\frac{1}{3}$
Trey	$1\frac{3}{8}$
Michael	$1\frac{3}{5}$
Helena	$1\frac{4}{9}$

4 _____

- A $1\frac{1}{3}$ mi
- B $1\frac{3}{8}$ mi
- C $1\frac{3}{5}$ mi
- D $1\frac{4}{9}$ mi

Standards Practice

Objective 1.03 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 5** A text on the geography of North Carolina stated that the Piedmont region comprises about $\frac{9}{20}$ of the total land area, the Atlantic Coastal region about 45% of the total area, and the Mountain region about 0.1 of the area. Which of the following lists the regions in order from greatest to least area? **5** _____
- A** Atlantic Coastal, Piedmont, Mountain
B Piedmont, Atlantic Coastal, Mountain
C Mountain, Atlantic Coastal, Piedmont
D Piedmont and Atlantic Coastal are the same, Mountain

- 6** Which statement is true? **6** _____
- A** $\frac{2}{5} > 40\%$ **B** $\frac{5}{8} < 60\%$
C $14\% = \frac{2}{7}$ **D** $\frac{3}{25} = 12\%$

- 7** Which is in order from least to greatest? **7** _____
- A** 17%, 0.213, 0.23, $\frac{3}{5}$, $\frac{18}{25}$
B 17%, 0.213, 0.23, $\frac{18}{25}$, $\frac{3}{5}$
C 17%, 0.23, 0.213, $\frac{18}{25}$, $\frac{3}{5}$
D 0.213, 0.23, $\frac{3}{5}$, $\frac{18}{25}$, 17%

- 8** Mr. Dabenow divided his science class into four teams, each of which will present a project at the end of the semester. The table shows how much of the project each team had completed at the end of 5 weeks. Which list shows the team projects in order from least completed to most completed?

Team	Amount Completed
oceans	0.37
sea life	$\frac{9}{25}$
climate	38%
energy	$\frac{7}{20}$

- A** energy, sea life, oceans, climate
B climate, oceans, sea life, energy
C oceans, climate, energy, sea life
D sea life, energy, oceans, climate

8 _____

Standards Practice

Objective 1.04

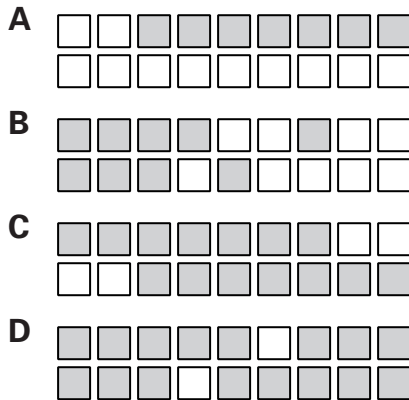


Multiply and divide fractions, mixed numbers, and decimals using models and pictures; record solution.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** On a hike at Umstead State Park, $\frac{7}{9}$ of the 18 hikers walked the full length of the trail. Which shows $\frac{7}{9}$ of 18?

1 _____



- 2** Which model is shaded correctly to show $\frac{3}{4}$ of $\frac{1}{2}$?

2 _____



- 3** A company packs votive candles in boxes that hold 6 candles each.

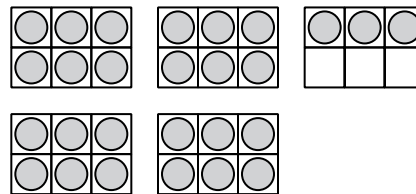
A packer filled $4\frac{1}{2}$ boxes as shown

at the right. Her supervisor told her

that she needs to fill $2\frac{1}{3}$ times as

many boxes to complete a rush order.

How many boxes does she need to complete the order?



3 _____

A $6\frac{2}{3}$

B $8\frac{1}{3}$

C $10\frac{1}{3}$

D $10\frac{1}{2}$

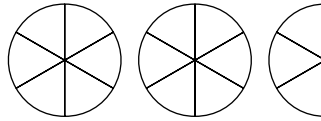
Standards Practice

Objective 1.04 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 4** Mr. Braddock wants to divide $2\frac{1}{2}$ pizzas equally among 5 people. What fraction of a whole pizza should each person receive?



A $\frac{1}{3}$

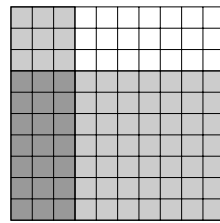
B $\frac{1}{2}$

C 4

D $12\frac{1}{2}$

4 _____

- 5** The model shows 0.3×0.7 . Which is the solution?



A 21

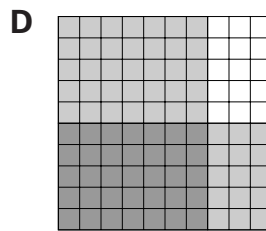
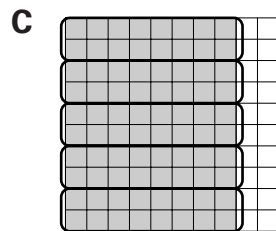
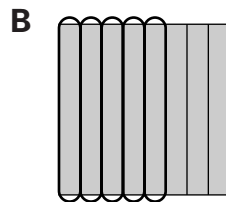
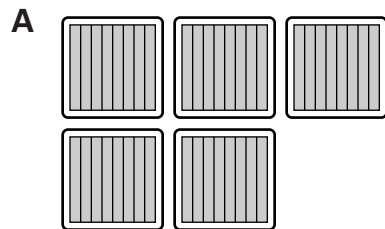
B 2.1

C 0.21

D 0.021

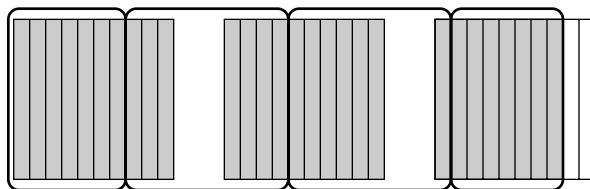
5 _____

- 6** Which model shows $0.8 \div 5$?



6 _____

- 7** Lydia has 2.8 yards of fabric that she wants to divide into 4 equal pieces. Which is the number of yards per piece of fabric?



A 0.7 yd

B 1.4 yd

C 1.7 yd

D 2.4 yd

7 _____

Standards Practice

Objective 1.05



Multiply and divide fractions, mixed numbers, and decimals.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 A community swimming center advertised lifeguard positions for the summer. The manager of the center hired $\frac{1}{4}$ of the 112 applicants that he interviewed. How many lifeguards did the manager hire? **1** _____
- A** 24 **B** 28
C 30 **D** 32

- 2 Miranda baked 48 muffins to sell at the school bake sale. She sold $\frac{2}{3}$ of the muffins and gave the rest to her friends to eat. How many of the muffins did she sell? **2** _____
- A** 8 **B** 16
C 24 **D** 32

- 3 What is $\frac{1}{2} \div \frac{1}{4}$? **3** _____
- A** $\frac{1}{8}$ **B** $\frac{3}{4}$
C 2 **D** 8

- 4 A baker has 18 pies that she wants to divide into sixths. How many slices of pie will she have if she divides 18 by $\frac{1}{6}$? **4** _____
- A** 108 **B** 54
C 24 **D** 3

- 5 A trail at Chinquapin Mountain is $3\frac{1}{5}$ miles long. If Ronnie hikes the trail 8 times in a month, how many miles will she hike? **5** _____
- A** $6\frac{2}{5}$ mi **B** $11\frac{1}{5}$ mi
C $24\frac{2}{5}$ mi **D** $25\frac{3}{5}$ mi

Standards Practice

Objective 1.05 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** Harmon wants to cut a $9\frac{3}{4}$ -inch strip of balsa wood into 3 equal pieces. **6** _____

What will be the length of each piece after he cuts the balsa wood?

A 3 in.

B $3\frac{1}{4}$ in.

C $6\frac{3}{4}$ in.

D $29\frac{1}{4}$ in.

- 7** Jeri practices running around the school track every day. Her best time is 2.1 minutes. It takes Denise one and a half times as long as Jeri. How long does it take Denise to run around the track? **7** _____

A 0.6 min

B 1.04 min

C 3.15 min

D 3.6 min

- 8** Greenville averaged 8.2 millimeters of rain per hour over 3.25 hours. How many millimeters of rain did Greenville get during this time? **8** _____

A 2.665 mm

B 4.95 mm

C 26.65 mm

D 32.5 mm

- 9** A 5.5-ounce bag of dried cherries cost \$3.41. How much did the cherries cost per ounce? **9** _____

A \$0.62

B \$0.71

C \$2.09

D \$2.86

- 10** What is $15.12 \div 0.036$? **10** _____

A 0.42

B 4.2

C 42.0

D 420

Standards Practice

Objective 1.06



Add and subtract fractions and mixed numbers with unlike denominators.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

Tara measured the heights of marigold seedlings for a science experiment. Use the chart of heights for Questions 1–3.

Seedling Height (in.)	
Seedling 1	$1\frac{1}{3}$
Seedling 2	$\frac{5}{6}$
Seedling 3	$1\frac{3}{4}$

- 1** What is the difference in height between seedlings 1 and 3?

A $\frac{1}{6}$ in.

B $\frac{5}{12}$ in.

C $\frac{3}{4}$ in.

D $3\frac{1}{12}$ in.

1 _____

- 2** How much taller is seedling 3 than seedling 2?

A $\frac{11}{12}$ in.

B $1\frac{1}{5}$ in.

C $1\frac{1}{3}$ in.

D $2\frac{7}{12}$ in.

2 _____

- 3** Seedling 2 grew $\frac{2}{3}$ inch in one week. What is its new height?

A $\frac{1}{6}$ in.

B $\frac{7}{18}$ in.

C $\frac{5}{9}$ in.

D $1\frac{1}{2}$ in.

3 _____

- 4** What is $\frac{5}{8} - \frac{1}{6}$?

A $\frac{1}{12}$

B $\frac{2}{7}$

C $\frac{11}{24}$

D $\frac{19}{24}$

4 _____

- 5** Felipe wants to ship some children's books to his nephews. The books weigh $\frac{5}{16}$, $\frac{5}{8}$, and $\frac{3}{4}$ pound, respectively. What is the total weight of the books?

A $\frac{13}{16}$ lb

B $1\frac{3}{8}$ lb

C $1\frac{3}{4}$ lb

D $1\frac{11}{16}$ lb

5 _____

Standards Practice

Objective 1.06 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** Hillary is $59\frac{1}{2}$ inches tall. Her sister Monica's height is $61\frac{1}{3}$ inches. How many inches shorter is Hillary than Monica? **6** _____
- A** $\frac{1}{6}$ in. **B** $1\frac{1}{6}$ in.
C $1\frac{5}{6}$ in. **D** $2\frac{5}{6}$ in.
- 7** What is $3\frac{1}{3} - 2\frac{4}{7}$? **7** _____
- A** $\frac{5}{21}$ **B** $\frac{16}{21}$
C $1\frac{1}{7}$ **D** $1\frac{5}{7}$
- 8** A park has 3 trails that have lengths of $2\frac{3}{5}$ miles, $1\frac{1}{6}$ miles, and $\frac{1}{3}$ mile. How many miles of trails does the park have? **8** _____
- A** $3\frac{1}{10}$ mi **B** $3\frac{4}{15}$ mi
C $3\frac{7}{10}$ mi **D** $4\frac{1}{10}$ mi
- 9** Mr. Krueger mixed $1\frac{1}{4}$ cups of cracked corn, $\frac{2}{3}$ cup of sunflower seeds, and $\frac{1}{2}$ cup of thistle seed to use in his bird feeder. How many cups of birdfeed did he make? **9** _____
- A** $1\frac{1}{12}$ c **B** $2\frac{1}{4}$ c
C $2\frac{5}{12}$ c **D** $2\frac{1}{2}$ c
- 10** Ms. Nichols drove from Cary to Holly Springs in 42 minutes. She then drove from Holly Springs to Wilmington in 2 hours and 48 minutes. How many hours did she drive at all? **10** _____
- A** $2\frac{1}{10}$ h **B** $2\frac{1}{2}$ h
C $2\frac{2}{3}$ h **D** $3\frac{1}{2}$ h

Standards Practice

Objective 1.07



Use estimation and mental math to solve problems with fractions, decimals, and percents; explain solution.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** Jaime has an aquarium that holds $3\frac{1}{2}$ gallons of water. To fill the aquarium, he uses a container that holds $\frac{1}{4}$ of a gallon. Which is the best estimate for the number of containers it will take to fill the aquarium?

1 _____

- A** 4 containers or less
B between 6 containers and 10 containers
C between 12 and 15 containers
D 16 containers or more

- 2** Mr. Jimenez bought 12 gallons of gasoline at a station in Fayetteville. The gas cost \$1.59 cents per gallon. *About* how much did he pay for the gas?

2 _____

- A** \$10
B \$15
C \$20
D \$25

- 3** Which solution gives the *best* estimate of $14.6 \div 9.3$?

3 _____

- A** $10 \div 10 = 1$
B $15 \div 10 = 1.5$
C $20 \div 10 = 2$
D $15 \div 5 = 3$

- 4** Mr. Sandoval has a 37-foot rope that he wants to divide into $4\frac{1}{2}$ -foot lengths. About how many lengths of $4\frac{1}{2}$ feet can he cut from the rope?

4 _____

- A** 5
B 6
C 7
D 8

- 5** The table shows how much fabric Kyra needs to make a costume for a school play. *About* how many yards of fabric should Kyra buy?

5 _____

Fabric (yd)	
skirt	$2\frac{1}{4}$
blouse	$1\frac{5}{8}$
sash	$\frac{2}{3}$

- A** 2 yd
B 4 yd
C 6 yd
D 8 yd

Standards Practice

Objective 1.07 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** Logan plans to buy 3 toys for his dog at \$2.29 each and 2 boxes of dog treats at \$4.89 each. Which solution shows *about* how much he will spend? **6** _____
- A** $(3 \times 2) + (2 \times 4) = \14
B $(3 \times 2) + (2 \times 5) = \16
C $(2 \times 2) + (3 \times 5) = \19
D $5(2 + 5) = \$35$
- 7** A survey of sixth grade students at a North Carolina middle school showed that 48 out of 78 students said they would try snow tubing at Sugar Mountain if given the opportunity. *About* what percent of the students said they would try snow tubing? **7** _____
- A** 70%
B 60%
C 50%
D 40%
- 8** Nicholas saw a skateboard on sale at a sporting goods store. The original price of the skateboard was \$79.95 and the sales price was \$59.95. Which is the *best* estimate of the percent discount on the skateboard? **8** _____
- A** 20%
B 25%
C 60%
D 75%
- 9** Mr. Chen wants to leave a 15% tip for a dinner that cost \$47.65. Which is the best estimate of the tip? **9** _____
- A** \$4.00
B \$5.00
C \$7.00
D \$10.00
- 10** Mr. Krezminski bought a new car for \$19,389. Which solution shows *about* how much he will pay in tax if the sales tax is 7%? **10** _____
- A** $\$2,000 \times 0.0007 = \1.40
B $\$2,000 \times 0.007 = \14.00
C $\$20,000 \times 0.007 = \140.00
D $\$20,000 \times 0.07 = \$1,400.00$

Standards Practice

Objective 1.08



Solve problems using prime factorization, common factors and common multiples; explain solutions.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** A group of sixth grade students volunteered to work with a group that restores the coastal habitat of Carolina beaches. The director of the group passed out 54 bags to collect trash and 36 containers of wetland grasses to plant. If each student received the same number of trash bags and each student received the same number of containers of wetland grasses, what is the *greatest* number of student volunteers?

1 _____

- A** 9 since 9 is a factor of both 54 and 36.
- B** 18 since 18 is the greatest common factor of 54 and 36.
- C** 36 since it is a multiple of 9, 6, and 4.
- D** 54 since it is the greatest common multiple of 9, 6, and 4.

- 2** Gelissa plays in a soccer game every 3 days and in a basketball game every 4 days. If she plays in a soccer game and a basketball game on the same day, how many days will it be before she plays in both games again?

2 _____

- A** 30 days
- B** 24 days
- C** 12 days
- D** 7 days

- 3** Mr. Yeager wants to fence a vegetable garden to keep rabbits from eating his plants. The garden is rectangular and measures 72 square feet. Which of the following are the possible dimensions of the garden?

3 _____

- A** $20 \text{ ft} \times 52 \text{ ft}$
- B** $15 \text{ ft} \times 5 \text{ ft}$
- C** $12 \text{ ft} \times 5 \text{ ft}$
- D** $9 \text{ ft} \times 8 \text{ ft}$

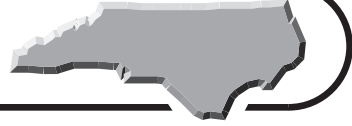
- 4** The governor of a state is elected every 4 years. The governor appoints a commission to study land quality every 6 years. If both events occurred in 2002, when will both occur in the same year again?

4 _____

- A** 2014
- B** 2012
- C** 2008
- D** 2006

Standards Practice

Objective 1.08 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 5** A bus for route A arrives at a bus stop every 9 minutes. A bus for route B arrives at the same bus stop every 12 minutes. How often do the buses arrive at the bus stop at the same time? **5** _____
- A** Every 3 minutes since 3 is a factor of 9 and 12.
B Every 21 minutes since $9 + 12 = 21$.
C Every 108 minutes since $3 \times 3 \times 3 \times 2 \times 2$ is the prime factorization of 9 and 12.
D Every 36 minutes since 36 is a common multiple of 9 and 12.
- 6** Deshawn has 12 buffalo nickels, 6 Indian head pennies, and 15 mercury dimes in his coin collection. He wants to organize the coins in rows so that each row has the same number of nickels, pennies, and dimes. What is the least number of coins he can put in each row? **6** _____
- A** 2 nickels, 3 pennies, and 3 dimes
B 3 nickels, 2 pennies, and 5 dimes
C 4 nickels, 2 pennies, and 5 dimes
D 4 nickels, 3 pennies, and 5 dimes
- 7** A nursery in Asheville has 18 beech trees, 24 pine trees, and 30 maple trees. The manager of the nursery wants each group of trees to have the same number of trees in each row. What is the *greatest* number of trees that each group can have in a row? **7** _____
- A** 3
B 6
C 9
D 18
- 8** Jenna stays after school every Wednesday to study math. She stays after school every other Monday to meet with the Spanish Club. On every third Tuesday, she stays after school to help stack books in the library. How often does she stay after school 3 days in the same week? **8** _____
- A** every second week
B every third week
C every fourth week
D every sixth week

Standards Practice

Objective 1.09

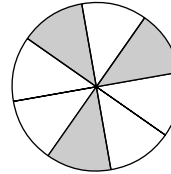


Use models and pictures to relate concepts of ratio, proportion, and percent; record results.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** If the ratio of the shaded parts of the circle to the total number of parts is 3 to 8, what percent of the total parts is shaded?

A 30%
B 37.5%
C 38%
D 80%

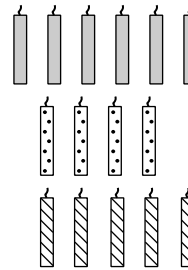


1 _____

Use the figures of solid, striped, and dotted birthday candles to answer Questions 2–4.

- 2** Which proportion shows the ratio of striped candles to the total number of candles?

A $\frac{1}{3} = \frac{5}{15}$
B $\frac{1}{2} = \frac{5}{10}$
C $\frac{5}{4} = \frac{5}{6}$
D $\frac{4}{5} = \frac{5}{6}$



2 _____

- 3** What is the percent of striped candles to the total number of candles?

A $83\frac{1}{3}\%$
B $66\frac{2}{3}\%$
C 50%
D $33\frac{1}{3}\%$

3 _____

- 4** If the percent of dotted candles to solid candles is $66\frac{2}{3}\%$, what is the ratio of dotted to solid candles?

A 4 to 15
B 4 to 5
C 2 to 3
D 1 to 2

4 _____

Standards Practice

Objective 1.09 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

Use the grid to answer Questions 5–7.

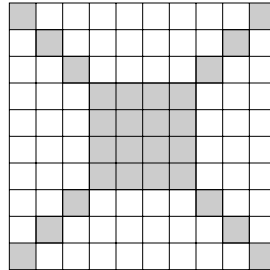
- 5** What is the ratio of shaded squares to the total number of squares?

A $\frac{1}{4}$

B $\frac{2}{7}$

C $\frac{7}{25}$

D $\frac{7}{18}$



5 _____

- 6** What percent of squares are shaded?

A $38\frac{8}{9}\%$

B 28%

C 27%

D 25%

6 _____

- 7** Which proportion describes the number of shaded squares to the number of non-shaded squares?

A $\frac{1}{4} = \frac{2}{8}$

B $\frac{2}{7} = \frac{14}{25}$

C $\frac{7}{25} = \frac{28}{100}$

D $\frac{7}{18} = \frac{28}{72}$

7 _____

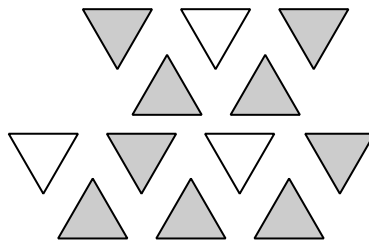
- 8** If the proportion $\frac{9}{12} = \frac{36}{48}$ is based on the ratio of shaded triangles to the total number of triangles, which is the ratio of shaded triangles to the total number of triangles, in simplest form?

A $\frac{3}{4}$

B $\frac{2}{3}$

C $\frac{1}{3}$

D $\frac{1}{4}$



8 _____

- 9** If the ratio of non-shaded triangles in Question 8 to shaded triangles is 3:9, what is the percent of non-shaded triangles to shaded triangles?

A 12%

B 27%

C $33\frac{1}{3}\%$

D 39%

9 _____

Standards Practice

Objective 1.10



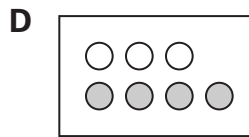
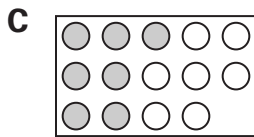
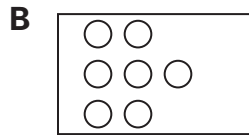
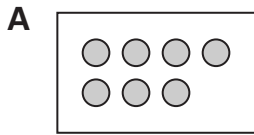
Use models and pictures to demonstrate understanding of integers.
Record results.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

Questions 1 and 2 use shaded counters to represent negative numbers and non-shaded counters to represent positive numbers.

- 1 Which mat could represent -7°F ?

1 _____



- 2 Chip used counters and a mat to keep track of his score in a word game. According to the mat, what is Chip's score?

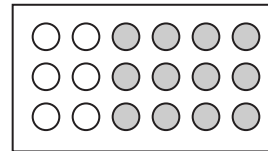
2 _____

A -18

B -12

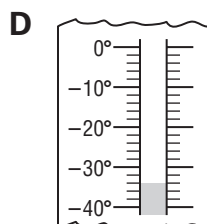
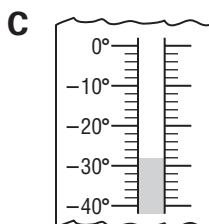
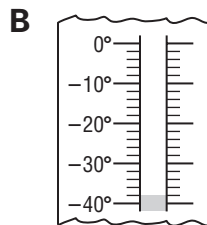
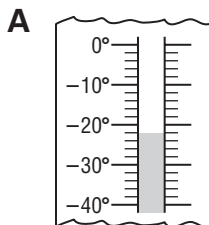
C -6

D 12



- 3 The record low temperature in North Carolina is 34 degrees below zero, recorded at Mt. Mitchell on January 21, 1985. Which thermometer shows -34° ?

3 _____



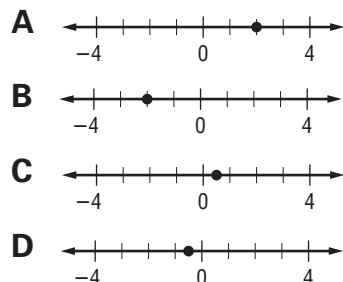
Standards Practice

Objective 1.10 (continued)

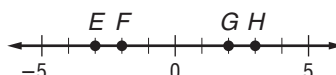


Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 4** Which number line has a dot that represents the integer that is opposite 2? **4** _____



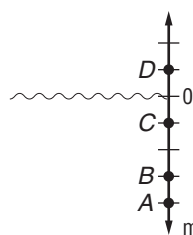
- 5** Chiavo answered three questions incorrectly on his science test. Which letter represents the number of questions he missed if each question was worth 1 point?



- A** *E*
B *F*
C *G*
D *H*

5 _____

In the figure, zero on the scale represents the water level of a lake. Each of the intervals is 1 meter. Use the figure to answer Questions 6 and 7.



- 6** Which depth is represented by point *A*? **6** _____

- A** -4 m
B -1 m
C 1 m
D 4 m

- 7** Which integer is the opposite of point *D*? **7** _____

- A** -1
B -2
C -3
D -4

Standards Practice

Objective 1.11



Compare and order integers.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** The table shows low extreme temperatures in January 2003. Which state had the highest low temperature?

A Alaska
B Minnesota
C New York
D Wyoming

Place	Low Temperature
Saranac Lake, New York	-34°F
Fort Yukon, Alaska	-35°F
Fryeburg, Maine	-22°F
Orr, Minnesota	-9°F
Jordon, Montana	-17°F
Big Piney, Wyoming	-10°F

1 _____

- 2** Using the table above, which list of states is in order from the lowest temperature to the highest temperature?

A Alaska, New York, Montana
B Minnesota, Wyoming, Montana
C Maine, Alaska, New York
D Wyoming, Maine, New York

2 _____

- 3** Which comparison is true?

A $-77 > -71$
B $-28 < -33$
C $-4 > 1$
D $-3 < -1$

3 _____

- 4** Geologists drill boreholes to determine the ground-water levels below the land surface. The list shows the depths of some boreholes drilled in various regions of North Carolina, rounded to the nearest foot. Which list shows the sites in order from deepest to least deep?

Site	Depth (ft)
Comfort	-8
Hornet's Nest	-5
Mocksville	-14
Simpson	-6

A Mocksville, Comfort, Simpson, Hornet's Nest
B Mocksville, Comfort, Hornet's Nest, Simpson
C Hornet's Nest, Simpson, Comfort, Mocksville
D Hornet's Nest, Comfort, Simpson, Mocksville

4 _____

Standards Practice



Objective 1.11 (continued)

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

5 Which list is in order from greatest to least?

5 _____

- A** $-28, -25, -6, 1$
- B** $-4, -2, 1, 15$
- C** $8, -4, -32, -31$
- D** $14, -15, -81, -97$

6 Which list is in order from least to greatest?

6 _____

- A** $-41, -27, -2, 43$
- B** $-24, -29, -33, -34$
- C** $8, 4, -31, -112$
- D** $-52, -68, -81, -83$

7 The chart shows some of the lowest altitudes on Earth. Which comparison is true?

7 _____

- A** $-1,312 > -512$
- B** $-131 < -92$
- C** $-512 < -1,312$
- D** $-282 > -131$

Location	Altitude (ft)
Caspian Sea	-92
Dead Sea	$-1,312$
Death Valley	-282
Lake Assal	-512
Valdes Peninsula	-131

8 Which list shows the places in order from least altitude to greatest altitude?

8 _____

- A** Dead Sea, Lake Assal, Death Valley, Valdes Peninsula, Caspian Sea
- B** Dead Sea, Death Valley, Lake Assal, Valdes Peninsula, Caspian Sea
- C** Caspian Sea, Valdes Peninsula, Death Valley, Lake Assal, Dead Sea
- D** Caspian Sea, Death Valley, Valdes Peninsula, Lake Assal, Dead Sea

9 Lee Anne's scores on a word game were $-3, +8, -1, +2$, and $+4$. Which is the *least* score?

9 _____

- A** -3
- B** -1
- C** $+8$
- D** $+2$

Standards Practice

Objective 1.12



Use the order of operations to simplify numerical expressions with parentheses and exponents.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

1 What is the value of $36 \div 3(5 - 3)^2$?

1 _____

A 3

B 9

C 48

D 576

2 What is $18 + 4^2 - (3 + 2)$?

2 _____

A 21

B 29

C 31

D 33

3 If you simplify $2 \times 8 \div 4 + (9^2 - 25)$, what is the result?

3 _____

A 30

B 47

C 60

D 64

4 What is the value of $9 + 7(6 - 2) + 54 \div 3^3$?

4 _____

A 66

B 51

C 43

D 39

5 What is the result when you simplify $12^2 + 8(17 - 5) \div 3$?

5 _____

A 80

B 156

C 176

D 608

Standards Practice



Objective 1.12 (continued)

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

6 If you simplify $(24 - 8) + 2^6 \div 4 + 12$, what is the result?

6 _____

- A** 5
- B** 20
- C** 32
- D** 44

7 Simplify $(5^2 - 10) \div 5 \times 2^3$.

7 _____

- A** 0.375
- B** 24
- C** 56
- D** 216

8 What is the result if you simplify $(14 + 2) + 48 \div (13 - 9)^2$?

8 _____

- A** 4
- B** 19
- C** 160
- D** 784

9 What is the value of $5^3 - (3 + 2)^2 \div 5$?

9 _____

- A** 10
- B** 20
- C** 120
- D** 2,880

10 What is $27 + 6^2 \div 9 \times 4 + (8 - 2^2)$?

10 _____

- A** 64
- B** 47
- C** 32
- D** 29

Standards Practice

Objective 1.13



Translate word problems into number sentences and solve. Explain solutions.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** The number of egrets and herons at a bird sanctuary in the Outer Banks is 42. There are twice as many egrets as there are herons. How many egrets are at the sanctuary? **1** _____
- A** 14 **B** 18
C 24 **D** 28
- 2** Members of an outdoor club decided to hike 12 kilometers of the Bartram Trail near Highlands. The number of kilometers they hiked before lunch was 6 more than the number of kilometers they hiked after lunch. How many kilometers did they hike after lunch? **2** _____
- A** 2 km **B** 3 km
C 6 km **D** 9 km
- 3** Tickets to the planetarium cost \$83.60 for a group of 22 students. The planetarium did not charge for the adult chaperones. If each ticket cost the same, what was the cost of a single ticket? **3** _____
- A** \$2.30 **B** \$2.80
C \$3.30 **D** \$3.80
- 4** Edmund and two of his friends spent \$135 on a canoe trip. If they split the cost of the trip equally, which solution shows the cost of the trip per person? **4** _____
- A** $\$135 \div 3 = \45 per person
B $\$135 - 3 = \132 per person
C $\$135 + 3 = \138 per person
D $\$135 \times 3 = \405 per person
- 5** The sixth grade class at Piedmont Middle School collected a total of 357 cans of food in three weeks for their annual food drive. They collected 125 cans the first week and 138 cans the second week. How many cans did they collect the third week? **5** _____
- A** 94 **B** 104
C 263 **D** 620



6 _____

- A** 42
B 57
C 67
D 75

Turtles & Salamanders

- A** 3 h
B 3.5 h
C 3.75 h
D 4.8 h

- A** \$6.90
B \$10.35
C \$11.50
D \$13.60

- A** 9 **B** 12
C 15 **D** 18

Standards Practice

Objective 1.14



Analyze problem situations, determine if there is sufficient information to solve the problem, identify missing or extraneous data, select appropriate strategies, and use an organized approach to solve multi-step problems; use calculators when appropriate.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 What information is not necessary to solve the problem below?

1 _____

The beaches in North Carolina are the northernmost nesting areas for loggerhead turtles. Females lay about 120 eggs to a nest and up to 6 nests per season. If a female lays 5 nests in a season and 80% of the eggs hatch, how many hatchlings is that?

- A The number of eggs per nest.
- B The percentage of eggs that hatch.
- C The actual number of nests for the season.
- D The maximum number of nests a turtle could lay per season.

- 2 Which of the following pieces of information is needed to solve the problem below?

2 _____

Ruben bought a baseball card two years ago. The value of the card is 3 times its original price. What did Ruben pay for the card two years ago?

- A The current value of the card.
- B The original price of the card.
- C The value of the card after one year.
- D The percent increase in the value of the card.

- 3 Tyesha saw a sign for volleyball nets on sale for \$22.49 at a sporting goods store. She did not buy a net but she did buy a volleyball for \$17.99. She also bought shoes on sale for \$52.80. *About* how much did she spend if she paid 7% sales tax on the items?

3 _____

- A about \$70
- B about \$75
- C about \$90
- D about \$100

Standards Practice

Objective 1.14 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 4** Elsa bought a CD for \$15.99 plus 7% sales tax. She paid for the CD with a \$20 bill. Which expression should she use to figure out how much change she should receive from the \$20 bill? **4** _____
- A** $20 - 15.99 + 0.07$
B $20 - 15.99 + 0.07(15.99)$
C $15.99 + 0.07(15.99) - 20$
D $20 - [15.99 + 0.07(15.99)]$
- 5** Bailey has a coupon for a 20% discount on a ski package. The package normally costs \$87.50. How much will the ski trip cost if she uses the coupon? **5** _____
- A** \$17.50
B \$67.50
C \$70
D \$105
- 6** An amusement park hires 4 security guards for every 300 people who attend the park. If the amusement park sells 675 tickets for a special event, how many security guards will they hire? **6** _____
- A** 6
B 7
C 9
D 10
- 7** Rikki and Logan had \$9 left after they spent half of their money to pay for two games of miniature golf. After they paid for golf, they spent $\frac{1}{3}$ of the remaining money on refreshments. How much money did they take to the miniature golf course? **7** _____
- A** \$12
B \$18
C \$24
D \$36
- 8** In Sonya's health class, $\frac{3}{4}$ of the students said that they use sunscreen when they go to the beach. Of these students, $\frac{1}{3}$ said that they use an SPF rating of 30+. How can you find the fraction of students who use a 30+ sunscreen when they go to the beach? **8** _____
- A** Rename $\frac{3}{4}$ and $\frac{1}{3}$ with 12 as the LCD, then add.
B Rename $\frac{3}{4}$ and $\frac{1}{3}$ with 12 as the LCD, then subtract.
C Divide $\frac{3}{4}$ by $\frac{1}{3}$.
D Multiply $\frac{3}{4}$ and $\frac{1}{3}$.

Standards Practice

Objective 2.01

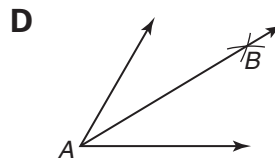
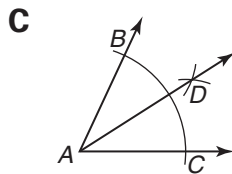
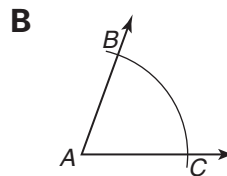
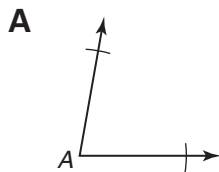


Construct congruent segments, congruent angles, bisectors of line segments and bisectors of angles.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

1 Which of the following shows a bisected angle?

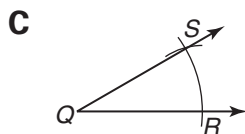
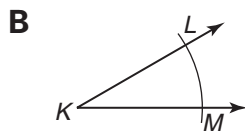
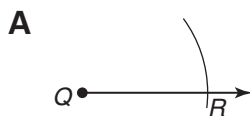
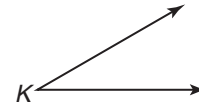
1 _____



2 Cullen is constructing an angle congruent to $\angle K$.

In the first step of the construction, he used a ruler to draw a ray with endpoint Q . Which could be the second step?

2 _____



Standards Practice

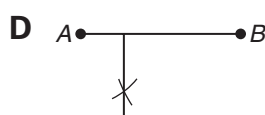
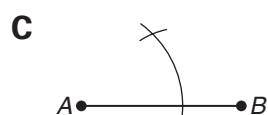
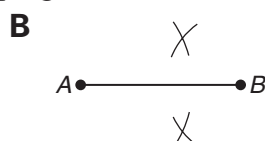
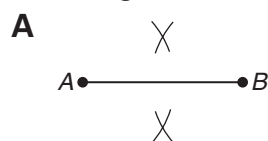
Objective 2.01 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 3** Juliet is constructing the bisector of a line segment. Which of the following shows the construction in progress?

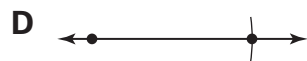
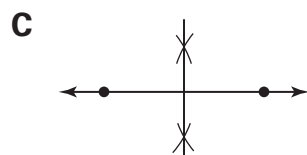
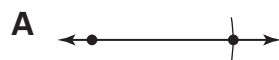
3 _____



- 4** Which line segment is constructed to be congruent to segment XY ?



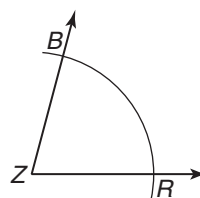
4 _____



- 5** Which would be the next step of bisecting an angle in the construction at the right?

5 _____

- A** Put the compass at point R and draw an arc in the exterior of the arc already drawn.
- B** Put the compass at point Z and draw an arc that intersects with the interior arc.
- C** Put the compass at point B and draw an arc that intersects with point R .
- D** Draw a line through the arc in the interior.



Standards Practice

Objective 2.02

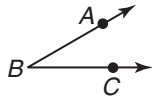


Define and identify interior, exterior, complementary, and supplementary angles and pairs of lines including skew lines.

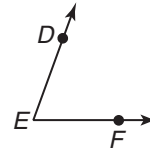
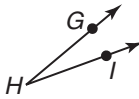
Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 Which angle is supplementary to $\angle DEF$?

A

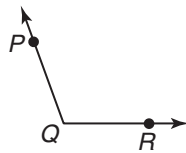


B

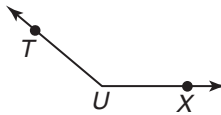


1 _____

C

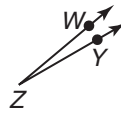
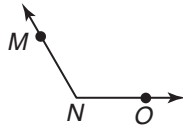
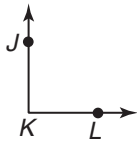


D



- 2 Which two angles are complementary angles?

2 _____



- A** $\angle JKL$ and $\angle WZY$
B $\angle MNO$ and $\angle RST$
C $\angle JKL$ and $\angle RST$
D $\angle RST$ and $\angle WZY$

- 3 If the measure of an angle is 38° , what is the measure of its complement?

3 _____

- A** 38°
B 52°
C 90°
D 128°

- 4 The supplement of $\angle H$ is 79° . What is the measure of $\angle H$?

4 _____

- A** 11°
B 101°
C 111°
D 180°

Standards Practice

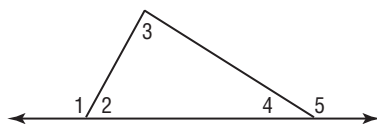
Objective 2.02 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 5 What type of angle is $\angle 2$ in the figure?

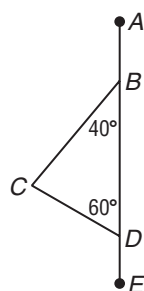
A interior
B exterior
C complementary
D obtuse



5 _____

- 6 Which angle in the figure is an exterior angle?

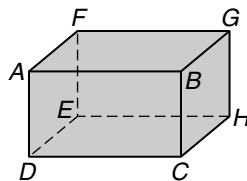
A $\angle BCD$
B $\angle CDB$
C $\angle DBC$
D $\angle EDC$



6 _____

- 7 Which pair of lines in the prism are skew?

A \overleftrightarrow{AB} and \overleftrightarrow{DC}
B \overleftrightarrow{CH} and \overleftrightarrow{BG}
C \overleftrightarrow{EF} and \overleftrightarrow{FG}
D \overleftrightarrow{AF} and \overleftrightarrow{BC}



7 _____

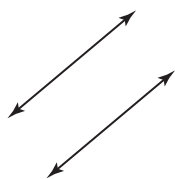
- 8 Which pair of lines are parallel in the above prism?

A \overleftrightarrow{DE} and \overleftrightarrow{CH}
B \overleftrightarrow{AF} and \overleftrightarrow{EF}
C \overleftrightarrow{BG} and \overleftrightarrow{AD}
D \overleftrightarrow{FG} and \overleftrightarrow{GH}

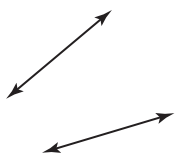
8 _____

- 9 Which pair of lines are perpendicular?

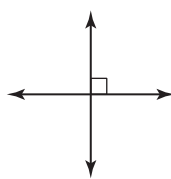
A



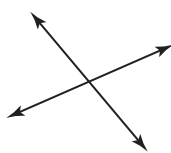
C



B



D



9 _____

Standards Practice

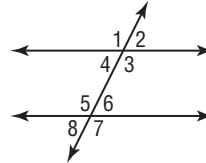
Objective 2.03



Define and identify alternate interior, alternate exterior, corresponding and vertical angles.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

Use the figure to answer Questions 1–5.



1 Which two angles are corresponding angles?

- A** $\angle 1$ and $\angle 2$
- B** $\angle 3$ and $\angle 5$
- C** $\angle 4$ and $\angle 7$
- D** $\angle 5$ and $\angle 1$

1 _____

2 What type of angles are $\angle 2$ and $\angle 8$?

- A** alternate exterior angles
- B** alternate interior angles
- C** corresponding angles
- D** vertical angles

2 _____

3 Which pair of angles are vertical angles?

- A** $\angle 1$ and $\angle 3$
- B** $\angle 1$ and $\angle 4$
- C** $\angle 1$ and $\angle 2$
- D** $\angle 1$ and $\angle 5$

3 _____

4 Which of the following describes $\angle 2$ and $\angle 6$?

- A** alternate interior angles
- B** alternate exterior angles
- C** vertical angles
- D** corresponding angles

4 _____

5 Which pair of angles in the figure are alternate interior angles?

- A** $\angle 3$ and $\angle 5$
- B** $\angle 4$ and $\angle 5$
- C** $\angle 3$ and $\angle 4$
- D** $\angle 2$ and $\angle 6$

5 _____

Standards Practice

Objective 2.03 (continued)



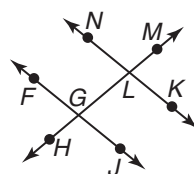
Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

6 Vertical angles are

- A** congruent.
- B** complementary.
- C** supplementary.
- D** obtuse.

6 _____

Use the figure to answer Questions 7–10.
Lines \overleftrightarrow{FJ} and \overleftrightarrow{NK} are parallel.



7 Which describes $\angle FGL$ and $\angle HGJ$?

- A** alternate interior angles
- B** corresponding angles
- C** alternate exterior angles
- D** vertical angles

7 _____

8 Which angles are alternate interior angles?

- A** $\angle JGL$ and $\angle NLG$
- B** $\angle HGJ$ and $\angle KLM$
- C** $\angle NLM$ and $\angle MLK$
- D** $\angle LGJ$ and $\angle KLG$

8 _____

9 Which pair of angles are corresponding?

- A** $\angle FGL$ and $\angle KLG$
- B** $\angle NLM$ and $\angle KLM$
- C** $\angle JGH$ and $\angle KLG$
- D** $\angle HGJ$ and $\angle KLM$

9 _____

10 Which describes angles $\angle FGH$ and $\angle KLM$?

- A** vertical angles
- B** corresponding angles
- C** alternate exterior angles
- D** alternate interior angles

10 _____

Standards Practice

Objective 2.04



Identify and distinguish among similar, congruent and symmetric figures; name corresponding parts.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** Which quadrilateral appears to be congruent to the one shown?

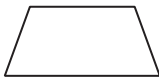
A



B



C



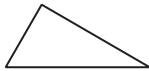
D



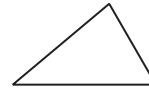
1 _____

- 2** Which triangle appears to be similar to the one shown?

A



B



C

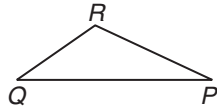
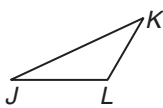


D



2 _____

- 3** If $\triangle JKL$ is similar to $\triangle PQR$, which angles are corresponding angles?



A $\angle L$ and $\angle R$

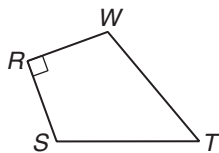
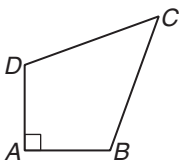
B $\angle J$ and $\angle Q$

C $\angle K$ and $\angle P$

D $\angle L$ and $\angle Q$

3 _____

- 4** If quadrilateral $ABCD$ is congruent to quadrilateral $RSTW$, which sides are corresponding sides?



A \overline{BC} and \overline{ST}

B \overline{CD} and \overline{ST}

C \overline{AD} and \overline{RS}

D \overline{DC} and \overline{RW}

4 _____

Standards Practice

Objective 2.04 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

5 Which figure has only one line of symmetry?

5 _____

A



B



C



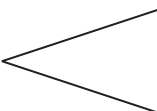
D



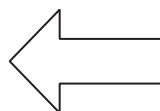
6 Which figure has rotational symmetry?

6 _____

A



B



C



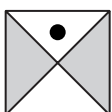
D



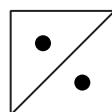
7 Which figure has point symmetry?

7 _____

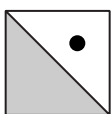
A



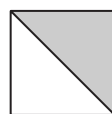
B



C



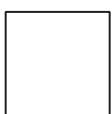
D



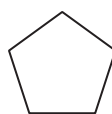
8 Which figure does *not* have point symmetry?

8 _____

A



B



C



D



Standards Practice

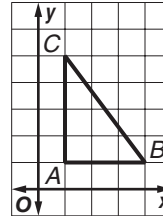
Objective 2.05



Locate, give the coordinates of, and graph plane figures which are the results of translations or reflections in the first quadrant.

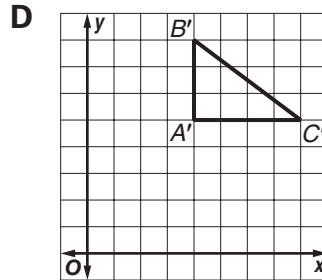
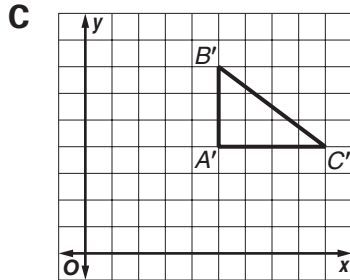
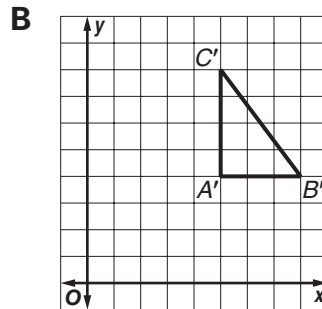
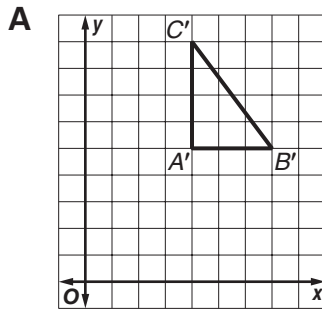
Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

Use the graph of $\triangle ABC$ to answer Questions 1 and 2.



- 1** Which of the following shows $\triangle ABC$ translated 4 units right and 3 units up?

1 _____



- 2** If $\triangle ABC$ is translated 2 units right and 5 units up, what will be the coordinates of $\triangle A'B'C'$?

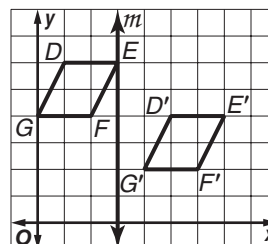
2 _____

- A** $A'(3, 6), B'(6, 6), C'(3, 10)$
B $A'(11, 6), B'(11, 9), C'(15, 6)$
C $A'(6, 11), B'(9, 11), C'(6, 15)$
D $A'(6, 3), B'(6, 6), C'(10, 3)$

- 3** Which of the following describes the transformation of parallelogram $DEFG$ to parallelogram $D'E'F'G'$?

3 _____

- A** reflection over line m
B 2 units right, 2 units down
C 2 units left, 4 units up
D 4 units right, 2 units down



Standards Practice

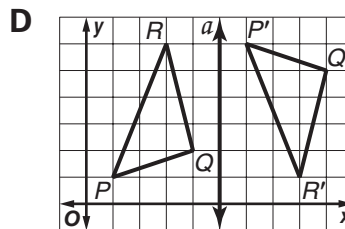
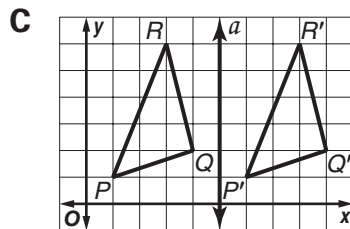
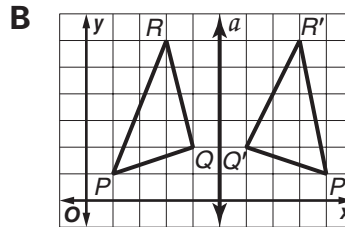
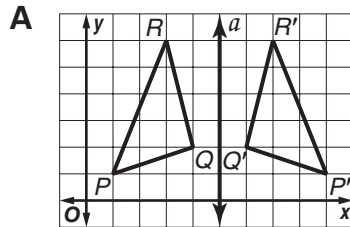
Objective 2.05 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 4 Which of the following shows $\triangle PQR$ reflected over line a ?

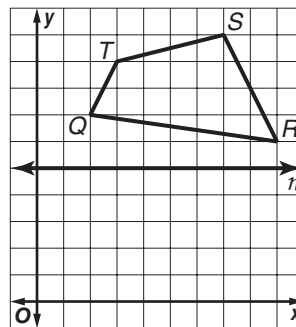
4 _____



- 5 What are the coordinates of quadrilateral $Q'R'S'T'$ after quadrilateral $QRST$ is reflected over line n ?

5 _____

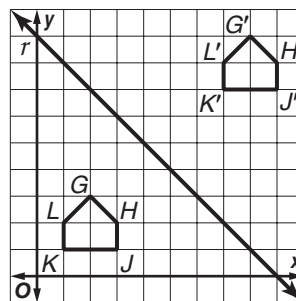
- A** $Q'(2, 1)$, $R'(9, 0)$, $S'(7, 4)$, $T'(3, 4)$
B $Q'(2, 4)$, $R'(9, 5)$, $S'(7, 1)$, $T'(3, 2)$
C $Q'(2, 3)$, $R'(9, 4)$, $S'(7, 0)$, $T'(3, 1)$
D $Q'(2, 0)$, $R'(9, 1)$, $S'(7, 5)$, $T'(3, 3)$



- 6 Which describes the transformation of pentagon $GHJKL$ to pentagon $G'H'J'K'L'$?

6 _____

- A** 6 units right, 6 units up
B 8 units right, 9 units up
C 3 units right, 6 units up
D reflection over line r



- 7 If you translate pentagon $G'H'J'K'L'$ 5 units left and 4 units down, what will be the coordinates of point G'' ?

7 _____

- A** (2, 3) **B** (3, 5)
C (4, 4) **D** (5, 4)

Standards Practice

Objective 2.06



Investigate and determine the relationship between the diameter and circumference of a circle and the value of pi; calculate the circumference of a circle.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 Amanda found a sand dollar when she visited Holden Beach on the North Carolina coast. The circular sand dollar was about 8 centimeters wide. What was the circumference of the sand dollar? Round to the nearest centimeter. **1** _____
- A** 25 cm **B** 50 cm
C 75 cm **D** 100 cm
- 2 Gregg uses a plastic hoop to teach his dog Rufus to jump. The hoop has a circumference of 2.8 meters. What is the diameter of the hoop to the nearest hundredth meter? **2** _____
- A** 0.45 m **B** 0.89 m
C 0.94 m **D** 1.89 m
- 3 A circular koi pond at a nature center has a diameter of 7 feet. What is the circumference of the pond? Round to the nearest foot. **3** _____
- A** 88 ft **B** 44 ft
C 22 ft **D** 11 ft
- 4 If the diameter of the koi pond in Question 3 is doubled, what effect will this have on the circumference of the pond? **4** _____
- A** It would double.
B It would quadruple.
C It would increase 8 times.
D It would increase 16 times.
- 5 A merry-go-round has a diameter of 20 feet. If someone is standing at the edge of the platform when the carousel begins to revolve, how far do they travel in one revolution? **5** _____
- A** about 30 ft
B between 30 and 35 ft
C about 63 ft
D between 120 and 125 ft

Standards Practice

Objective 2.06 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** A basketball hoop has a diameter of 18 inches. What is the circumference of the hoop? Round to the nearest inch. **6** _____
- A** 28 in.
B 36 in.
C 57 in.
D 113 in.
- 7** Payton has a circular rug next to her bed. The radius of the rug is 45 centimeters. What is the circumference of the rug? Round to the nearest centimeter. **7** _____
- A** 565 cm
B 283 cm
C 270 cm
D 145 cm
- 8** Mr. Fuentes bought a new set of tires for his truck. The diameter of the tires is 33 inches. How far will his truck travel if the tires turn one complete time? Round to the nearest inch. **8** _____
- A** 52 in.
B 66 in.
C 104 in.
D 207 in.
- 9** Aphelia walked around a circular display of tropical plants at a botanical garden. If the radius of the display is 16 feet and she walked on the edge of the path closest to the display, *about* how many feet did she walk? **9** _____
- A** 201 ft
B 100 ft
C 50 ft
D 20 ft
- 10** Students in a gym class stood in a circle to practice tossing and catching balls of different sizes. If the circumference of the circle is 13 meters, what is the diameter of the circle? Round to the nearest meter. **10** _____
- A** 2 m
B 4 m
C 7 m
D 41 m

Standards Practice

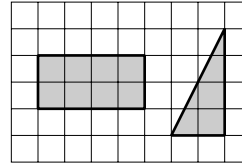
Objective 2.07



Identify the relationship between areas of triangles and rectangles with the same base and height.

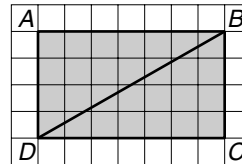
Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 What is the relationship between the area of the triangle and the area of the rectangle?
- A** The area of the rectangle is 4 times the area of the triangle.
- B** The area of the rectangle is twice the area of the triangle.
- C** The area of the triangle is $\frac{3}{4}$ the area of the rectangle.
- D** The area of the triangle is $\frac{1}{8}$ the area of the rectangle.



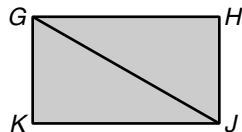
1 _____

- 2 If rectangle $ABCD$ has an area of 28 square units, what is the area of $\triangle BCD$?
- A** $\frac{1}{7}$ the area of $ABCD$, or 4 units²
- B** $\frac{1}{4}$ the area of $ABCD$, or 7 units²
- C** $\frac{1}{2}$ the area of $ABCD$, or 14 units²
- D** $\frac{4}{7}$ the area of $ABCD$, or 16 units²



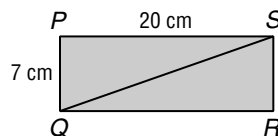
2 _____

- 3 If $\triangle GHJ$ has an area of 32 square units, what is the area of rectangle $GHJK$?
- A** 4 times the area of $\triangle GHJ$, or 128 units²
- B** 3 times the area of $\triangle GHJ$, or 96 units²
- C** twice the area of $\triangle GHJ$, or 64 units²
- D** $1\frac{1}{2}$ times the area of $\triangle GHJ$, or 48 units²



3 _____

- 4 What is the area of $\triangle PQS$?
- A** 140 cm²
- B** 70 cm²
- C** 54 cm²
- D** 27 cm²



4 _____

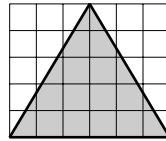
Standards Practice

Objective 2.07 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

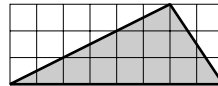
- 5** Which describes the relationship between the area of the shaded triangle and the area of the rectangle in the figure?



5 _____

- A** The area of the triangle is $\frac{5}{6}$ the area of the rectangle, or 25 units².
- B** The area the triangle is $\frac{3}{4}$ the area of the rectangle, or 22.5 units².
- C** The area of the triangle is $\frac{1}{2}$ the area of the rectangle, or 15 units².
- D** The area of the triangle is $\frac{1}{4}$ the area of the rectangle, or 7.5 units².

- 6** What is the relationship between the area of the rectangle and the area of the shaded triangle shown in the figure?



6 _____

- A** The area of the rectangle is 3 times the area of the triangle.
- B** The area of the rectangle is twice the area of the triangle.
- C** The area of the rectangle is 1.5 times the area of the triangle.
- D** The area of the rectangle is 1.25 times the area of the triangle.

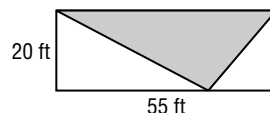
- 7** What is the area of the rectangle in the figure if the area of the shaded triangle is 90 square meters?



7 _____

- A** 112.5 m²
- B** 135 m²
- C** 150 m²
- D** 180 m²

- 8** What is the area of the shaded triangle in the figure?



8 _____

- A** 275 ft²
- B** 550 ft²
- C** 825 ft²
- D** 1,100 ft²

Standards Practice

Objective 2.08

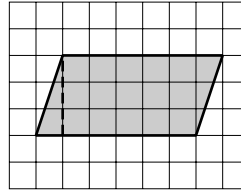


Use models to develop formulas for finding areas of triangles, parallelograms and circles.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

1 What is the area of the parallelogram?

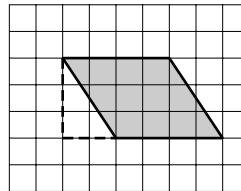
- A** 15 units²
- B** 18 units²
- C** 21 units²
- D** 24 units²



1 _____

2 What is the area of the parallelogram?

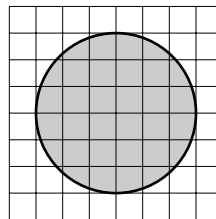
- A** 12 units²
- B** 15 units²
- C** 18 units²
- D** 21 units²



2 _____

3 What is the area of the circle? Round to the nearest square unit.

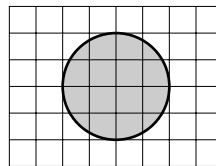
- A** 19 units²
- B** 22 units²
- C** 28 units²
- D** 32 units²



3 _____

4 What is the area of the circle? Round to the nearest the nearest square unit.

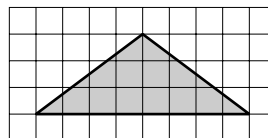
- A** 16 units²
- B** 13 units²
- C** 10 units²
- D** 8 units²



4 _____

5 What is the area of the triangle?

- A** 8 units²
- B** 10 units²
- C** 12 units²
- D** 15 units²



5 _____

Standards Practice

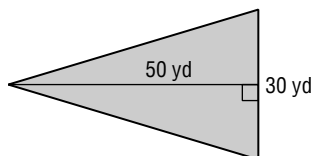
Objective 2.08 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** What is the area of the triangle?

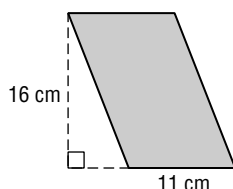
A 40 yd²
B 80 yd²
C 750 yd²
D 1,500 yd²



6 _____

- 7** What is the area of the parallelogram?

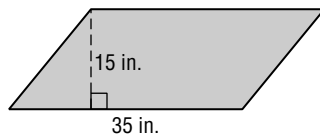
A 176 cm²
B 132 cm²
C 88 cm²
D 54 cm²



7 _____

- 8** How many square inches are in the parallelogram?

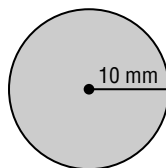
A 100 in²
B 175 in²
C 350 in²
D 525 in²



8 _____

- 9** What is the area of the circle to the nearest square millimeter?

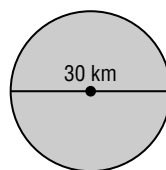
A 63 mm²
B 126 mm²
C 314 mm²
D 1,256 mm²



9 _____

- 10** *About* how many square kilometers are in the circle? Round to the nearest square kilometer.

A 2,826 km²
B 707 km²
C 283 km²
D 94 km²



10 _____

Standards Practice

Objective 2.09



Calculate areas of triangles, parallelograms and circles.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

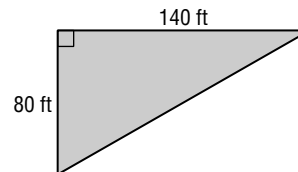
- 1** Mrs. Jesse imported triangular stepping stones for a wildflower garden she planted in her backyard. The base of each stepping stone is 27 centimeters. The height is 22 centimeters. What is the area of each stepping stone?

1 _____

- A** 38 cm^2 **B** 76 cm^2
C 297 cm^2 **D** 594 cm^2

- 2** The Wilson family purchased a triangular corner lot in Harnett County. What is the area of the lot?

2 _____



- A** $1,400 \text{ ft}^2$
B $2,800 \text{ ft}^2$
C $3,200 \text{ ft}^2$
D $5,600 \text{ ft}^2$

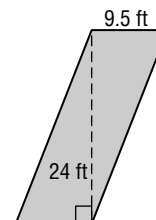
- 3** The triangular-shaped main sail of a sailboat is 8 meters high and 3.6 meters wide at the base. How many square meters of material are in the sail?

3 _____

- A** 28.8 m^2 **B** 19.6 m^2
C 14.4 m^2 **D** 9.8 m^2

- 4** The figure shows the measure of each slanted parking stall in the parking lot at an art museum. What is the area of each stall?

4 _____



- A** 228 ft^2
B 114 ft^2
C 57 ft^2
D 28.5 ft^2

- 5** A stationary store used the shape of a parallelogram to form the border of their store sign. If the length of the border is 38 inches, and the height is 14 inches, what is the area of the sign inside the border?

5 _____

- A** 133 in^2 **B** 266 in^2
C 532 in^2 **D** $1,064 \text{ in}^2$

Standards Practice

Objective 2.09 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** What is the area of a parallelogram that measures 25 millimeters at the base and is 8 millimeters high? **6** _____
- A** 50 mm^2
B 100 mm^2
C 200 mm^2
D 400 mm^2
- 7** A compact disc has a diameter of 12 centimeters. What is the area of the disc to the nearest square centimeter? **7** _____
- A** 38 cm^2
B 75 cm^2
C 113 cm^2
D 452 cm^2
- 8** Corey set the sprinkler system in his yard so that each pop-up sprinkler head would water a circular area with a radius of 14 feet. What area of the lawn will the sprinkler cover? Round to the nearest square foot. **8** _____
- A** 154 ft^2
B 196 ft^2
C 615 ft^2
D $2,462 \text{ ft}^2$
- 9** A pet store wants to install a circular aquarium. The base of the aquarium will have a diameter of 2.4 meters. To the nearest tenth, how many square meters of floor will be needed for the aquarium alone? **9** _____
- A** 15.1 m^2
B 8.9 m^2
C 7.5 m^2
D 4.5 m^2
- 10** The wall clock in a classroom has a radius of 8 inches. *About* how many square inches of wall space does the clock cover? Round to the nearest square inch. **10** _____
- A** 804 in^2
B 201 in^2
C 100 in^2
D 50 in^2

Standards Practice

Objective 2.10

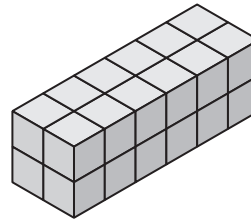


Model the concept of volume for rectangular solids as the product of the area of the base and the height.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

1 What is the volume of the figure?

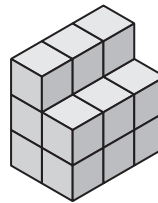
- A 12 units³
- B 16 units³
- C 24 units³
- D 36 units³



1 _____

2 What is the volume of the figure?

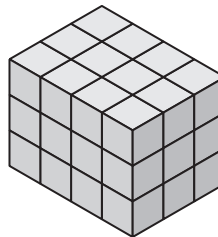
- A 12 units³
- B 15 units³
- C 18 units³
- D 21 units³



2 _____

3 How many cubic units are in the box?

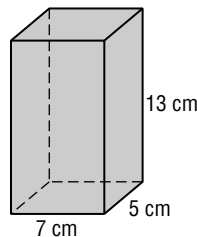
- A 36 units³
- B 33 units³
- C 27 units³
- D 25 units³



3 _____

4 What is the volume of the rectangular solid?

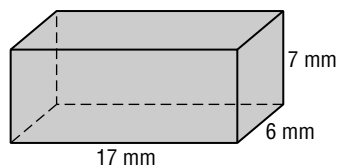
- A 126 cm³
- B 156 cm³
- C 455 cm³
- D 630 cm³



4 _____

5 What is the volume of the rectangular box?

- A 161 mm³
- B 221 mm³
- C 374 mm³
- D 714 mm³



5 _____

Standards Practice

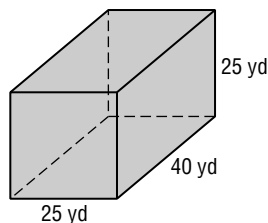
Objective 2.10 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** What is the volume of the rectangular prism?

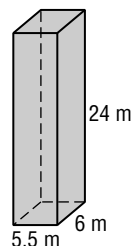
A 25,000 yd³
B 2,000 yd³
C 1,625 yd³
D 1,000 yd³



6 _____

- 7** If the width of 5.5 meters is doubled, what will be the volume of the rectangular solid?

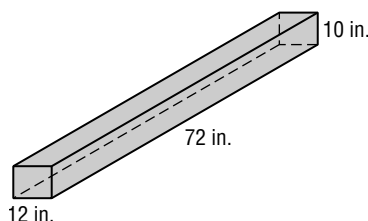
A 155 m³
B 408 m³
C 792 m³
D 1,584 m³



7 _____

- 8** If the length of 72 inches is halved, what will be its volume?

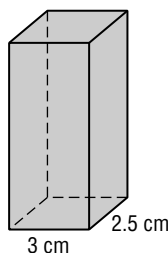
A 156 in³
B 372 in³
C 984 in³
D 4,320 in³



8 _____

- 9** The volume of the rectangular solid is 52.5 cubic centimeters. What is its height?

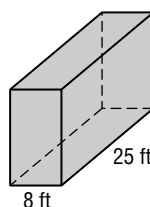
A 7 cm
B 21 cm
C 45 cm
D 47 cm



9 _____

- 10** The rectangular box has a volume of 3,000 cubic feet. How tall is the box?

A 3.75 ft
B 15 ft
C 40 ft
D 150 ft



10 _____

Standards Practice

Objective 2.11



Convert measures of length, area, capacity, weight and time expressed in a given unit to other units in the same measurement system.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 The Laurel Valley Trail Run in Rocky Bottom is 40 miles long. If Brent runs 22.3 miles of the trail and Emily runs 21.8 miles of the trail, how many more feet did Brent run than Emily? **1** _____
- A** 1,584 ft
B 2,640 ft
C 6,864 ft
D 7,920 ft
- 2 Johnston walks 1.2 kilometers to school each day. How many meters does he walk? **2** _____
- A** 12 m
B 120 m
C 1,200 m
D 12,000 m
- 3 The area of a mural is 6,048 square inches. How many square feet is this? **3** _____
- A** 42 ft²
B 126 ft²
C 252 ft²
D 504 ft²
- 4 The area of a stamp is 910 square millimeters. What is the area of the stamp in square centimeters? **4** _____
- A** 0.091 cm²
B 0.91 m²
C 9.1 cm²
D 91 cm²
- 5 Elinor is planning a dinner reception for 22 members of a historic preservation society in Winston-Salem. If she wants each member to have a cup of soup, how many quarts of soup should she make for the dinner? **5** _____
- A** 6 qt
B 5 qt
C 4 qt
D 3 qt

Standards Practice



Objective 2.11 (continued)

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** How many 375-milliliter glasses can be filled from a 2-liter bottle of spring water? **6** _____

A 3
B 4
C 5
D 6

- 7** Hector has a math textbook that has a mass of 1.25 kilograms. What is the mass of the textbook in grams? **7** _____

A 12,500 g
B 1,250 g
C 125 g
D 12.5 g

- 8** Mikayla bought $2\frac{1}{2}$ pounds of dog biscuits for Felix. How many ounces is this? **8** _____

A 30 oz
B 32 oz
C 40 oz
D 44 oz

- 9** The table shows the number of minutes Tory swam laps each day last week. How many hours did Tory swim?

Day	Time (min)
Monday	40
Tuesday	45
Wednesday	65
Thursday	80
Friday	90

A $3\frac{1}{3}$ h
B $5\frac{1}{3}$ h
C $5\frac{1}{2}$ h
D 6 h

9 _____

- 10** Bryce said he was counting the hours until he could start school. School starts in 7 days. How many hours is that? **10** _____

A 40 h
B 120 h
C 144 h
D 168 h

Standards Practice

Objective 2.12



Estimate solutions to problems involving geometry and measurement.
Determine when estimates are sufficient for the measurement situation.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 A Johnston county farmer raises sweet potatoes that he ships to market. If 6 medium sweet potatoes weigh about 3 pounds, *about* how many medium-sized potatoes will fit in a box that has a 40-pound limit? **1** _____
- A** 20 **B** 80
C 100 **D** 240
- 2 Marcello wants to buy a box of chocolates from Belgium. How many chocolates can he expect to find in a 500-gram box if each chocolate is between 18 and 22 grams? **2** _____
- A** under 20
B around 25
C between 28 and 30
D over 30
- 3 Zoey uses about 24 centimeters of leather string to make a beaded bracelet. If she has a piece of leather string that is 174 centimeters long, how many beaded bracelets can she make? **3** _____
- A** 6 **B** 7
C 8 **D** 9
- 4 Two of the female elephants at the North Carolina Zoo have been taught to paint on canvas. Suppose a female elephant weighs 4,823 pounds and eats $\frac{3}{5}$ of her weight in food per day. Which is the best estimate for the tons of food that she eats? **4** _____
- A** 1 **B** $1\frac{1}{2}$
C 2 **D** $2\frac{1}{2}$
- 5 The drama club has $7\frac{1}{4}$ yards of fabric from which they want to make sashes for the actors in a school play. If they need $\frac{3}{4}$ of a yard for each sash, *about* how many can they make? **5** _____
- A** 15 **B** 12
C 9 **D** 6

Standards Practice

Objective 2.12 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** In which situation would an estimate of the measure be sufficient? **6** _____
- A** Patrice wants to know how many centimeters of trim to buy for a circular tablecloth with a diameter of 350 centimeters.
 - B** A doctor needs to prescribe medicine for a patient with seasonal allergies.
 - C** Sponsors of a 10-kilometer run want to declare a winner from among the first 3 runners to cross the finish line in the race.
 - D** A carpenter wants to know the measure of a window frame so he can replace a broken pane.
- 7** How many boxes does a company need to ship 250 computer games if each box holds 35 games? **7** _____
- A** 7
 - B** 8
 - C** 9
 - D** 10
- 8** What is the best estimate for the volume of a jewelry box that is 15.25 centimeters high, 18 centimeters long, and 8.5 centimeters wide? **8** _____
- A** 1,800 cm³
 - B** 2,400 cm³
 - C** 3,000 cm³
 - D** 4,000 cm³
- 9** How many 1-inch cubes can fit into a box that is 5 inches long, 2 inches wide, and 4 inches high? **9** _____
- A** 40
 - B** 50
 - C** 80
 - D** 100
- 10** Jake bought 3 apples that weigh about 12 ounces each, a 7-ounce bag of popcorn, and 5 cans of soup that weigh $12\frac{3}{4}$ ounces each. If all the items are placed in one grocery bag, *about* how many pounds of groceries will Jake have to carry home? **10** _____
- A** 9 lb
 - B** 8 lb
 - C** 7 lb
 - D** 6 lb

Standards Practice

Objective 2.13



Analyze problem situations, select appropriate strategies, and use an organized approach to solve non-routine and increasingly complex problems involving geometry and measurement. Use technology as appropriate.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** An architect designed a triangular stained glass window for an art studio. The area of the window is 270 square inches. If the base of the window is 30 inches, what is its height? **1** _____
A 4.5 in. **B** 9 in. **C** 18 in. **D** 27 in.
- 2** Mrs. Russell bought fencing for a rectangular rose garden that measures 12 feet by 10 feet. After she bought the fencing, she decided to increase the dimensions of the garden to 18 feet by 12 feet. If she wants to install fencing around the garden, how many more feet of fencing does she need to buy? **2** _____
A 8 ft **B** 16 ft **C** 96 ft **D** 104 ft
- 3** Mr. Diamond has two pond hoses. One has a diameter of 20 millimeters. The other has a diameter of 32 millimeters. What is the difference in the area of the openings of the two hoses? **3** _____
A about 19 mm² **B** about 38 mm²
C about 490 mm² **D** about 1,960 mm²
- 4** Tricia has an 8-inch by 10-inch photograph that she enlarged to 12 inches by 15 inches. How much more wall space does she need to hang the enlarged photograph? **4** _____
A 18 in² **B** 90 in²
C 100 in² **D** 260 in²
- 5** The area of the base of a cylindrical display case is about 572 square centimeters. If you want to know the diameter of the base, which strategy would you use? **5** _____
A Divide the square root of 572 by 2 to get about 12 centimeters.
B Divide 572 by 3.14, then find the square root of the result to get about 13.5 centimeters.
C Find the square root of 572 to get about 24 centimeters.
D Divide 572 by 3.14, find the square root of the result, then multiply by 2 to get about 27 centimeters.

Standards Practice

Objective 2.13 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

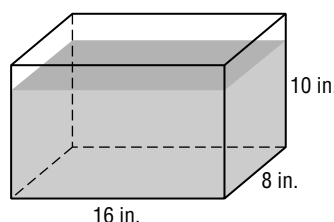
- 6** Gillian planted a ring of dahlias around the base of a birdbath. The birdbath has a circular base with a radius of 42 centimeters. If she plants the dahlias so that they are 20 centimeters apart, *about* how many plants will be in the ring?

A 6
B 13
C 19
D 26

6 _____

- 7** One gallon of water has a volume of about 231 cubic inches. If Enrique fills the aquarium shown to within two inches of the top, about how many gallons of water will be in the aquarium?

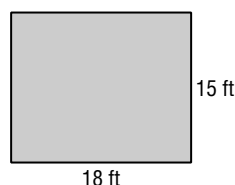
A more than 5
B about 5
C about $4\frac{1}{2}$
D less than 4



7 _____

- 8** If it costs about \$0.14 to paint one square foot of the wall shown, how much will it cost to paint the whole wall?

A \$4.62
B \$9.24
C \$19.29
D \$37.80



8 _____

- 9** The Harringtons want to replace the tile in a sunroom. The dimensions of the room are 8 feet by 8 feet and the tile costs \$15 per square foot. If the Harringtons have \$800 to spend, do they have enough to replace the tile?

A Yes, because $8 \times 15 = 120$
B No, because 64 is more than 15
C Yes, because $8 \times 15 \times 4 = 480$
D No, because $64 \times 15 = 960$

9 _____

Standards Practice

Objective 3.01



Describe, extend and write rules for a variety of patterns.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** What rule describes the pattern shown below?

1 _____

64, 32, 16, 8, 4, ____?

- A** Subtract 32.
B Add 4.
C Multiply by 2.
D Divide by 2.

- 2** What rule does the pattern below follow?

2 _____

2, 5, 11, 23, ...

- A** Add 3 to each term.
B Multiply each term by 3 and subtract 1 from the product.
C Multiply each term by 4 and subtract 3 from the product.
D Multiply each term by 2 and add 1 to the product.

- 3** Which number comes next in the pattern?

3 _____

78, 73, 63, 43, ____?

- A** 0
B 3
C 13
D 23

- 4** What are the next 3 numbers in the pattern?

4 _____

3, 5, 9, 17, ...

- A** 33, 65, 129
B 27, 39, 53
C 25, 33, 41
D 31, 57, 95

- 5** Based on the pattern in the chart, which number should appear beneath 10?

5 _____

9	12	15	18	21
16	31	46	61	76

10
?

- A** 17
B 21
C 26
D 31

Standards Practice

Objective 3.01 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** What fraction comes next in the pattern below?

6 _____

$$\frac{3}{5}, \frac{9}{15}, \frac{27}{45}, \frac{81}{135}, \text{---?}$$

A $\frac{87}{145}$

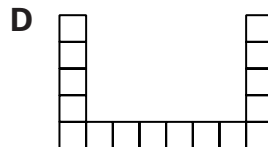
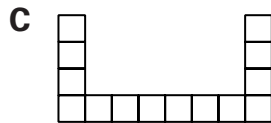
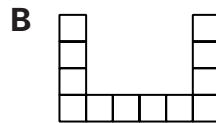
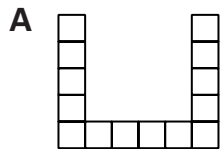
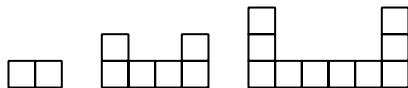
B $\frac{108}{225}$

C $\frac{243}{405}$

D $\frac{243}{675}$

- 7** Which figure comes next in the pattern below?

7 _____



- 8** What is the rule for the pattern in Question 7?

8 _____

- A** Add twice as many blocks to each of the figures.
B Add 2 blocks to each of the figures.
C Add 2 blocks to each of the towers of the figures and 2 blocks to the base.
D Add 2 blocks to the base of each of the figures and 1 block to each of the towers.

- 9** Becca used the pattern shown in the table for the border of some stationary she designed. If there are 42 seashells in the pattern, how many starfish are there?

9 _____

Seashells	6	9	12	15	18
Starfish	2	3	4	5	6

A 7

B 14

C 18

D 24

Standards Practice

Objective 3.02



Generate a set of ordered pairs using a given rule which is stated verbally or algebraically.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** If the y -coordinate in an ordered pair is 4 less than the x -coordinate, what ordered pair would continue the pattern below?

(18, 14), (15, 11), (12, 8), _____?

A (8, 4)

B (8, 5)

C (9, 4)

D (9, 5)

1 _____

- 2** In which set of ordered pairs is the y -coordinate 6 more than the x -coordinate?

A (5, 11), (8, 14), (11, 17), (14, 20)

B (5, 0), (7, 6), (9, 12), (11, 18)

C (2, 4), (8, 10), (14, 16), (20, 22)

D (1, 6), (3, 18), (4, 24), (6, 36)

2 _____

- 3** In which set of ordered pairs is the second number 3 times the first number plus 1?

A

1st	2nd
1	3
3	10
6	31
9	64

B

1st	2nd
1	4
3	13
6	40
9	121

C

1st	2nd
1	4
3	10
6	19
9	28

D

1st	2nd
1	4
3	7
6	10
9	13

3 _____

- 4** In which set of ordered pairs is the second number the result of using the rule $7x$?

A (0, 7), (1, 8), (2, 9), (3, 10)

B (0, 7), (1, 7), (2, 14), (3, 21)

C (0, 0), (1, 8), (2, 9), (3, 10)

D (0, 0), (1, 7), (2, 14), (3, 21)

4 _____

- 5** If the rule for the y -coordinate in an ordered pair is $x \div 2$, what ordered pair continues the pattern below?

(50, 25), (40, 20), (30, 15), _____?

A (20, 10)

B (14, 2)

C (10, 10)

D (0, 2)

5 _____

Standards Practice

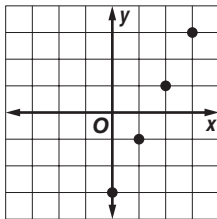
Objective 3.02 (continued)



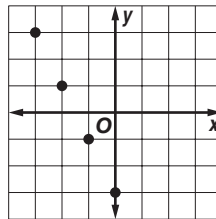
Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** Which graph displays the set of ordered pairs given by the rule $2x - 3$? **5** _____

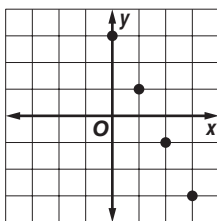
A



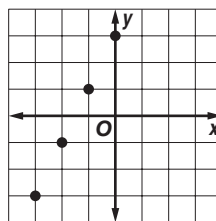
B



C



D



- 7** Which is the set of ordered pairs that you get if you use the rule $\frac{1}{4}x$? **6** _____

A

x	y
4	16
8	32
12	48
16	64

B

x	y
4	32
8	8
12	2
16	$\frac{1}{2}$

C

x	y
4	1
8	2
12	3
16	4

D

x	y
4	$\frac{1}{2}$
8	2
12	8
16	32

- 8** Hank used the rule $4x + 2$ to generate the ordered pairs shown below. Which two ordered pairs continue the pattern? **7** _____

(0, 2), (1, 6), (2, 10), (3, 14)

A (4, 18) and (5, 22)

B (4, 10) and (5, 26)

C (18, 20) and (22, 24)

D (18, 19) and (22, 23)

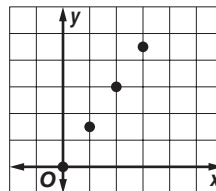
- 9** If the rule $\frac{3x}{2}$ was used to graph the ordered pairs, which of the following ordered pairs could also appear on the graph?

A (4, 6)

B $(4, 7\frac{1}{2})$

C (5, 6)

D (5, 8)



Standards Practice

Objective 3.03

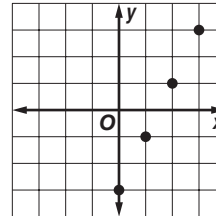


Given a group of ordered pairs, identify either verbally or algebraically the rule used to generate them and record results.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 If the pattern on this graph continues, which rule should you use to find the y -coordinate in the ordered pair $(4, \underline{\quad})$?

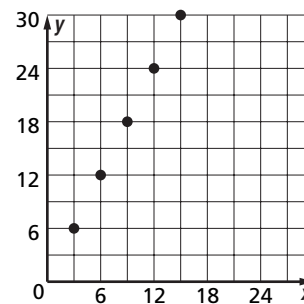
- A** Multiply 4 by 2, then subtract 3.
B Divide 4 by 2, then add 3.
C Add 3 to 4.
D Subtract 1 from 4.



1 _____

- 2 Which rule is used to solve for y in the ordered pairs on the graph?

- A** $x + 3$
B $x \times 3$
C $x + 2$
D $x \times 2$



2 _____

- 3 Which expression should replace the question mark in the table?

- A** $s + 6$
B $s \times 4$
C $(s + 2) \times 2$
D $(s \times 2) + 2$

s	?
2	6
4	10
0	2
5	12
6	14

3 _____

- 4 Which describes the relationship among the ordered pairs below?

$(1, 5), (2, 8), (4, 14), (6, 20), (10, 32)$

- A** The y -coordinate is 4 more than the x -coordinate.
B The y -coordinate is twice the x -coordinate plus 3.
C The y -coordinate is 5 times the x -coordinate.
D The y -coordinate is 3 times the x -coordinate plus 2.

4 _____

Standards Practice

Objective 3.03 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 5** Which rule was used to find the y -coordinates of the ordered pairs in the table?

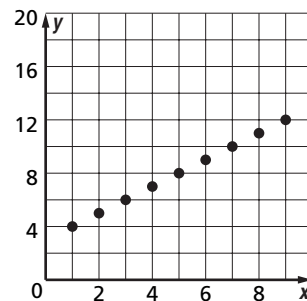
- A** Add 5.
B Multiply by 2, then add 2.
C Multiply by 3, then subtract 1
D Multiply by 4, then subtract 4.

x	y
3	8
4	11
7	20
8	23
12	35

5 _____

- 6** Which of the following describes the relationship among the coordinates of the ordered pairs on the graph?

- A** The y -coordinate is 2 more than the x -coordinate.
B The y -coordinate is 3 more than the x -coordinate.
C The y -coordinate is twice the x -coordinate.
D The y -coordinate is 4 times the x -coordinate.



6 _____

- 7** Which rule could you use to find the y -coordinate that corresponds to the x -coordinate 16?

- A** Divide by 2, then add 3.
B Add 3.
C Multiply by 2, then subtract 3.
D Subtract 3.

x	y
0	3
4	5
12	9
16	?
18	12

7 _____

- 8** Which rule can be used to find the y -coordinates using the corresponding x -coordinates?

- A** $x \times 7$
B $x + 6$
C $x \times 3 + 4$
D $x \times 2 + 5$

x	y
1	7
3	11
5	15
7	19
9	23

8 _____

Standards Practice

Objective 3.04



Use variables to describe numerical expressions and relationships.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** The weight of any object on the moon is one-sixth its weight on Earth. If w represents the weight of Anyi's dog on Earth, which expression shows the weight of Anyi's dog on the moon? **1** _____

A $\frac{w}{6}$

B $6 \times w$

C $w - 6$

D $w + 6$

- 2** Austin is 3 years older than Skylar. If the letter a represents Austin age, which expression represents Skylar's age? **2** _____

A $a - 3$

B $3 \times a$

C $a + 3$

D $a \div 3$

- 3** Xavier wants to buy 4 T-shirts and 2 pairs of shorts for a vacation to Emerald Isle. If t represents the cost of one T-shirt and s represents the cost of one pair of shorts, which of the following could he use to find the total cost of the T-shirts and shorts? **3** _____

A $4t + 2s$

B $t + s$

C $4(t + 2s)$

D $(4 + 2) \times (t + s)$

- 4** A dive shop in Morehead City offers shipwreck dives for \$95. They also offer equipment rentals for \$15 per hour. If h represents the number of hours of renting equipment, which of the following could be used to find the total cost of a dive? **4** _____

A $15h + 95$

B $15(h + 95)$

C $h(15 + 95)$

D $95(h + 15)$

- 5** Hudson earns money in the summer pet sitting for neighbors when they are at work or on vacation. He also washes and combs dogs. He charges a flat fee of \$15 to wash and comb a dog and \$7 per hour to pet sit. If h represents the number of hours that Hudson pet sits and w represents the number of dogs washed and combed, which expression represents how much he will earn during the summer? **5** _____

A $(15 + 7) \times (w + h)$

B $(15 + w) \times (7 + h)$

C $15w \times 7h$

D $15w + 7h$

Standards Practice

Objective 3.04 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** Anna Marie won the lead role in a school play. She wants to memorize 12 lines of the play per day so that she will know all her lines by the time rehearsals begin. If d represents the number of days before rehearsals begin, which expression represents the total number of lines she plans to learn? **6** _____
- A** $12d$
B $d + 12$
C $12(d - 1)$
D $12 - d$
- 7** A researcher measured the average speed of a loggerhead turtle swimming near Topsail Island at 20 miles per hour. The loggerhead turtle has to swim 28 miles to its nesting destination. If h represents the number of hours it takes the turtle to swim to its nesting spot, which equation can be used to determine the total number of hours to swim the 28 miles? **7** _____
- A** $h - 20 = 28$
B $h + 20 = 28$
C $28 \times h = 20$
D $20 \times h = 28$
- 8** The lake at which Maggie is fishing has a 36 fish limit. If she has already caught 7 fish, which of the following can she use to find how many more fish f she can catch before she reaches her limit? **8** _____
- A** $f - 7 = 36$
B $f + 7 = 36$
C $\frac{f}{7} = 36$
D $7 \times f = 36$
- 9** Rylee bought a lantana bush and 3 azaleas at a nursery. The total cost of the plants before tax was \$52. She knows she paid \$38 for the azaleas, but she cannot remember how much she paid for the lantana. If ℓ represents the lantana bush, which of the following can be used to find the cost of the lantana? **9** _____
- A** $\ell \times 38 = 52$
B $\ell - 38 = 52$
C $\ell \div 38 = 52$
D $\ell + 38 = 52$

Standards Practice

Objective 3.05



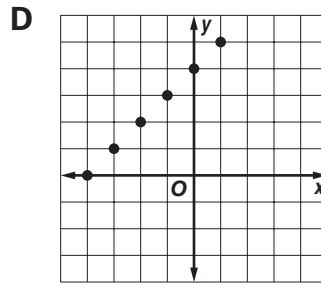
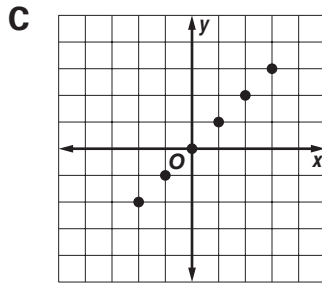
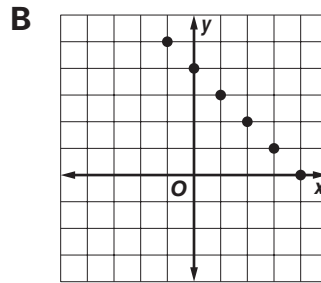
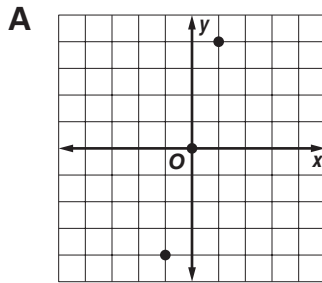
Use graphs and tables to represent ordered pairs; describe the relationship; recognize both linear and nonlinear relationships.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** Which graph shows the relationship between x and y described below?

1 _____

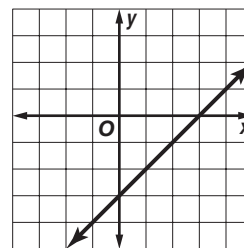
For every increase of 1 in the x value, the y value increases by 4.



- 2** Which equation describes the relationship between x and y on the graph?

2 _____

- A** $y = x - 3$
B $y = -x - 3$
C $y = x + 3$
D $y = -x + 3$



- 3** Which table of ordered pairs shows the relationship between x and y described below?

3 _____

The y value is double the x value.

A

x	y
1	2
3	4
5	8
12	16

B

x	y
1	2
3	6
5	10
12	24

C

x	y
2	1
6	3
10	5
24	12

D

x	y
3	1
5	3
7	5
14	12

Standards Practice

Objective 3.05 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 4** Which equation describes the relationship between x and y in the table?

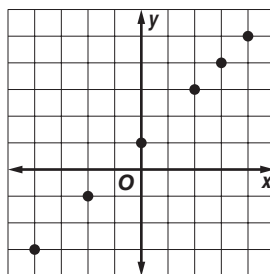
- A** $y = x + 5$
B $y = -x + 5$
C $y = x - 5$
D $y = -x - 5$

x	y
0	-5
5	0
7	2
11	6
15	10

4 _____

- 5** Which description matches the graph?

- A** a linear relationship in which the y value increases by 1 for every increase in 1 in the x values
B a linear relationship in which the y value increases by 2 for every increase in 1 in the x values
C a non-linear relationship in which the y values decrease either by 1 or 2 for every increase of 1 in the x values
D a non-linear relationship in which the y values increase either by 1 or 2 for every increase of 1 in the x values



5 _____

- 6** Which of the following describes the relationship between x and y in the table?

- A** a linear relationship in which the y values increase by 2 for every increase in 1 in the x values
B a linear relationship in which the y values decrease by 1 for every increase in 1 in the x values
C a non-linear relationship in which the ordered pairs do not form a pattern
D a non-linear relationship in which the ordered pairs form a v-shaped pattern

x	y
-2	4
-1	3
0	2
1	3
2	4

6 _____

Standards Practice

Objective 3.06



Identify and use patterning as a strategy to solve problems.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** Martin bought two plants at a nursery in Goldsboro. One plant has a height of 9 centimeters and grows at an average rate of 3 centimeters per week. The other plant is 3 centimeters in height and grows at an average rate of 4 centimeters per week. If the plants continue to grow at this rate, in which week will both plants be the same height?

Week	1	2	3	4	5
Plant 1	9	12	15	18	21
Plant 2	3	7	11	15	19

- A** week 6
C week 8

- B** week 7
D week 9

1 _____

- 2** How tall will the plants in Question 1 be when they reach the same height?
- A** 23 cm
C 26 cm
- B** 24 cm
D 27 cm

2 _____

- 3** Two tickets to the fair cost \$11.50, four tickets cost \$23.00, and six tickets cost \$34.50. What is the most likely cost of 14 tickets?
- A** \$46.00
C \$69.00
- B** \$57.50
D \$80.50

3 _____

- 4** Riana was offered a job at a tutoring center. She earned \$7.25 per hour the first year and \$8.15 per hour the second year. If her hourly wages increase at the same rate each year, how much will she earn during her sixth year of work?
- A** \$15.40
C \$11.75
- B** \$12.65
D \$10.85

4 _____

- 5** A microbiologist is growing cells in a culture. If she starts with 2 cells on the first day and the cells triple every day thereafter, how many cells will she have on the fifth day?
- A** 30
C 150
- B** 54
D 162

5 _____

Standards Practice

Objective 3.06 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** Carlos is saving money to buy a bicycle that costs \$250. The table shows how much money Carlos plans to save each week. How many weeks will it take Carlos to save enough money to buy the bicycle?

Week	1	2	3	4	5
Total Saved (\$)	2	4	8	16	32

- A** 6 weeks
B 7 weeks
C 8 weeks
D 9 weeks

6 _____

- 7** Students are pushing together tables for a banquet in the school cafeteria. Six people can sit around one table. Ten people can sit around two tables pushed together and 14 can sit around three tables pushed together. How many people can be seated around 5 tables that have been pushed together?

- A** 20
B 22
C 24
D 30

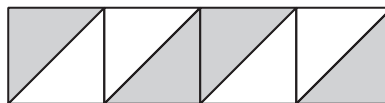
7 _____

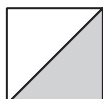
- 8** Elisa rented a surfboard for \$28. The rental fee is \$8 for one hour, \$13 for two hours, \$18 for three hours, and so on. For how many hours did she rent the surfboard?

- A** 7 h
B 6 h
C 5 h
D 4 h

8 _____

- 9** Patrick is tiling the shower in his bathroom. To make a border around the top of the shower, he uses square ceramic tiles to create the pattern shown. If he uses 15 tiles, which of the following tiles will he use for number 15?



- A** 
B 
C 
D 

9 _____

Standards Practice

Objective 4.01



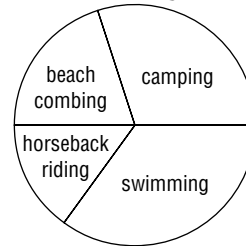
Create and evaluate graphic representations of data.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 The following are the results of a poll asking students to name their favorite summer activity. If 200 students were polled, *about* how many chose horseback riding?

A 15
B 30
C 50
D 70

Favorite Summer Activity

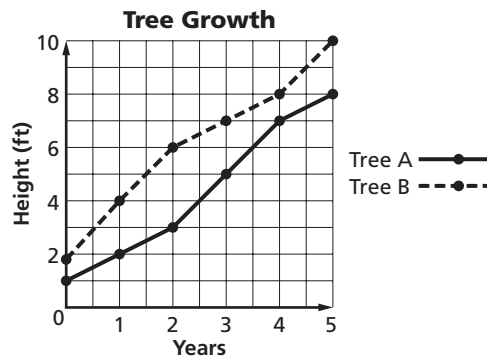


1 _____

Use the graph of annual growth rates for two crape myrtle trees to answer Questions 2 and 3.

- 2 What was the height of tree A at 2 years?

A 3 ft
B 4 ft
C 5 ft
D 6 ft



2 _____

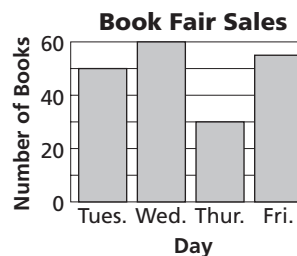
- 3 What was the difference in height between the two trees in year 4?

A 8 ft
B 6 ft
C 2 ft
D 1 ft

3 _____

- 4 The bar graph shows the number of books sold at Pine Middle School during the book fair. How many more books were sold on Tuesday than on Thursday?

A 10
B 20
C 25
D 30



4 _____

Standards Practice

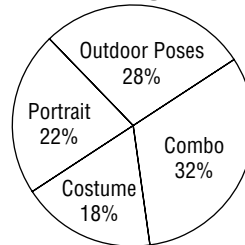
Objective 4.01 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 5** The circle graph shows the popularity of several photo packages offered by a photography studio. If the graph is based on the packages that 300 clients selected, how many chose the outdoor package?

Popular Photo Packages



5 _____

- A** 28
B 54
C 66
D 84

- 6** The data set shows the attendance at 10 basketball games for a community league in Mooresville. Which stem-and-leaf plot *best* displays the data?

42, 33, 29, 41, 42, 26, 38, 35, 21, 40

6 _____

A

Stem	Leaf
20	1 6 9
30	3 5 8
40	1 2 2

40 = 1

B

Stem	Leaf
20	1 6 9
30	3 5 8
40	0 1 2 2

40|1 = 41

C

Stem	Leaf
2	1 6 9
3	3 5 8
4	1 2 2

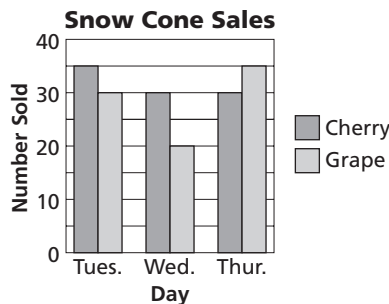
4|0 = 1

D

Stem	Leaf
2	1 6 9
3	3 5 8
4	0 1 2 2

4|0 = 40

- 7** Olivia kept a daily record of the flavor of snow cones sold at a school carnival. How many more cherry snow cones were sold than grape snow cones on all three days?



7 _____

- A** 10
B 15
C 20
D 25

Standards Practice

Objective 4.02



Analyze data using spreadsheets.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

Henry offers discount cards at four nutrition stores he owns in the Durham area. The spreadsheet below shows the number of discount cards sold at each of the stores during a 2-year period. Use the spreadsheet to answer Questions 1–3.

	A	B	C	D
1		2001	2002	Increase
2	Store 1	58	80	22
3	Store 2	83	102	19
4	Store 3	79	94	15
5	Store 4	92	105	13
6	Total Discount Cards	312	381	69

1 Which store sold the most discount cards in 2002?

1 _____

- A** Store 1
- B** Store 2
- C** Store 3
- D** Store 4

2 Which *best* describes the relationship between four stores?

2 _____

- A** The store with the greatest number of discount cards sold in 2001 had the greatest increase in the number of cards sold in 2002.
- B** The ranking of stores from least number of discount cards sold to greatest number of discount cards sold did not change from 2001 to 2002.
- C** Each of the stores in 2002 sold more discount cards than any of the stores in 2001.
- D** The store with the greatest increase in discount cards from 2001 to 2002 is the most successful store in terms of the number of discount cards sold.

3 If Henry closes one of the stores on the basis of number of discount cards sold in 2002, which store should he close?

3 _____

- A** Store 1
- B** Store 2
- C** Store 3
- D** Store 4

Standards Practice

Objective 4.02 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 4** Dalmar works at a grocery store and is monitoring the time customers spend waiting in line at the fast checkout lane. According to the spreadsheet, what is the relationship between the number of people in line and the time they have to wait in line?

4 _____

	A	B
1	Number Waiting in Line	Wait Time (minutes)
2	3	9
3	4	12
4	5	15
5	6	18

- A** For every 3 people in line, the wait time increases 3 minutes.
B For every 3 people in line, the wait time increases 9 minutes.
C For every 3 people in line, the wait time increases 18 minutes.
D For every 3 people in line, the wait time increases 27 minutes.

- 5** Andrew wants to know if he should join a travel club for \$150. If he does, hotel rooms will cost \$50 per night. If he does not, the same rooms cost \$65 per night. The spreadsheet shows the cost of hotel rooms with and without membership in a travel club. According to the table, how many nights would Andrew have to stay in the hotel for the total cost of hotel rooms to be *less* with a travel club membership than without?

5 _____

	A	B	C
1	Number of Nights	Travel Club	No Travel Club
2	2	250	130
3	4	350	260
4	6	450	390
5	8	550	520
6	10	650	650
7	12	750	780
8	14	850	910

- A** 6
B 8
C 10
D 12

Standards Practice

Objective 4.03



Locate points in all quadrants of the coordinate plane using ordered pairs.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

Use the graph to answer Questions 1–3.

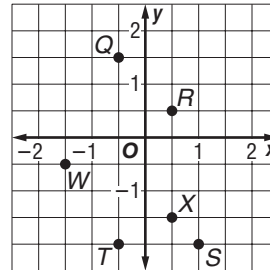
- 1 Which ordered pair names point R ?

A $(-1, 1)$

B $(\frac{1}{2}, \frac{1}{2})$

C $(\frac{1}{2}, 1)$

D $(1, \frac{1}{2})$



1 _____

- 2 Which point is located at $(-\frac{1}{2}, 1\frac{1}{2})$?

A Q

B R

C W

D X

2 _____

- 3 Which ordered pair names point T ?

A $(-1, -2)$

B $(-1, -4)$

C $(-\frac{1}{2}, 2)$

D $(-\frac{1}{2}, -2)$

3 _____

Use the graph to answer Questions 4 and 5.

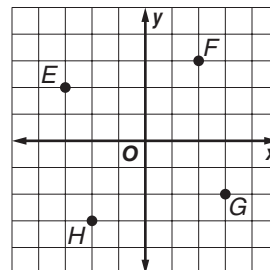
- 4 Which ordered pair names point E ?

A $(2, -3)$

B $(-3, 2)$

C $(-2, 3)$

D $(-3, -2)$



4 _____

- 5 Which point is located at $(3, -2)$?

A E

B F

C G

D H

5 _____

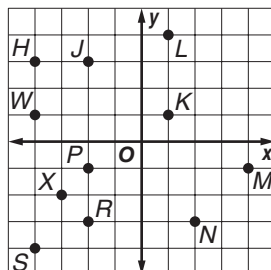
Standards Practice

Objective 4.03 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

Use the graph to answer Questions 6–10.



6 Which ordered pair names point P ?

- A** $(-2, -1)$
- B** $(-1, -2)$
- C** $(2, -1)$
- D** $(-1, 2)$

6 _____

7 Which point is located at $(4, -1)$?

- A** W
- B** S
- C** M
- D** L

7 _____

8 Which ordered pair names point N ?

- A** $(3, -2)$
- B** $(2, -3)$
- C** $(2, 3)$
- D** $(-3, 2)$

8 _____

9 Which ordered pair names point H ?

- A** $(-3, 4)$
- B** $(-3, -4)$
- C** $(-4, -3)$
- D** $(-4, 3)$

9 _____

10 Which point is located at $(-2, -3)$?

- A** J
- B** N
- C** R
- D** X

10 _____

Standards Practice

Objective 4.04



Use measures of central tendency to compare two sets of data.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1 Kimberly's scores on 6 science tests are shown below.

1 _____

87, 93, 82, 91, 93, 85

Her teacher told her that he would add 3 points to each of the tests. How does the mean of the new test scores compare with the mean of the test scores in the box?

- A** The mean stays the same at 88.5.
- B** The mean stays the same at 89.
- C** The new mean is 91.5, which is 3 points higher than the mean of the test scores in the box.
- D** The new mean is 92, which is 1.5 points higher than the mean of the test scores in the box.

The table below shows the average maximum temperatures in Asheville and Cape Hatteras in °F from January through June. Use the table to answer Questions 2–4.

Month	Jan	Feb	Mar	Apr	May	June
Asheville	49	51	57	68	76	83
Cape Hatteras	52	54	58	66	75	82

- 2 Which *best* describes the *range* of temperatures in the two cities?

2 _____

- A** The range in temperatures is the same for both cities.
- B** Asheville has the greater range of temperatures by 4°F.
- C** Cape Hatteras has the greater range of temperatures by 0.5°F.
- D** The range in temperatures for both cities is 30 degrees or less.

- 3 Which comparison of temperatures is true?

3 _____

- A** The mean is lower and the median is higher in Asheville.
- B** The mean and median is higher in Cape Hatteras.
- C** The mean and the median temperature is higher in Asheville.
- D** The median is higher and the mean lower in Cape Hatteras.

- 4 Which is the mode for the two cities?

4 _____

- A** 62°F
- B** 64°F
- C** 64.5°F
- D** Neither has a mode.

Standards Practice

Objective 4.04 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

The stem-and-leaf plots below show the ages of volunteers at two wildlife sanctuaries. Use the plots to answer Questions 5 and 6.

Grant's Pond

Stem	Leaf
1	7 8 9
2	1 6
3	3 4 4
4	7 8
5	2 3
4 7 = 47	

High Point

Stem	Leaf
2	1 3 7
3	4 4 5
4	1 2 6
5	1 7
6	8
2 3 = 23	

- 5 Which of the following describes both sanctuaries? 5 _____
- A** The median age of volunteers is greater than the mean age.
B The mean age of volunteers is greater than the median age.
C They have the same mode.
D The range in ages is the same.
- 6 If you compare the mean ages of the volunteers, which statement is true? 6 _____
- A** Both sanctuaries have a mean volunteer age of 33.5.
B The mean age of the volunteers at Grant's Pond is greater than the mean age of the volunteers at High Point.
C The mean age of volunteers at High Point is 5 years more than the mean age of volunteers at Grant's Pond.
D The mean age of volunteers at High Point is about 6.5 years more than the mean age of volunteers at Grant's Pond.
- 7 The daily number of E-mails received at a business the first two weeks that it opened are shown below. What is the difference in the *median* number of E-mails between the 2 weeks? 7 _____
- Week 1: 18, 29, 16, 10, 17
 Week 2: 22, 14, 15, 12, 27
- A** 2 E-mails
B 4 E-mails
C 19 E-mails
D no difference

Standards Practice

Objective 4.05

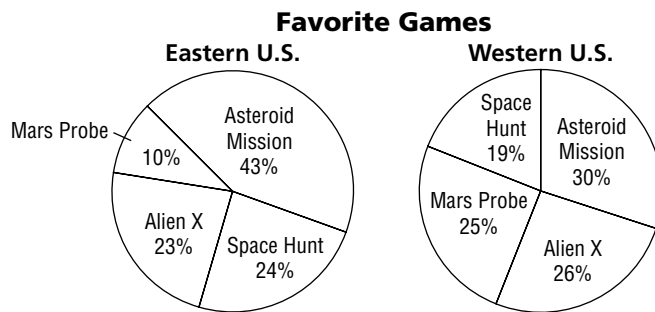


Construct convincing arguments based on analysis of data and interpretation of graphs.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** A software company in Research Triangle Park test-marketed 4 computer games in the 10–14 age range to determine which game(s) to market. The circle graphs show the results of their research. According to the circle graphs, which of the following is a true statement?

1 _____



- A** About the same number of players in the eastern and western United States chose Space Hunt as their favorite game.
- B** Mars Probe is the least popular game in both the eastern and western United States.
- C** Alien X is the third favorite game in both the eastern and western United States.
- D** Asteroid Mission is not as popular in the western part of the states as in the eastern.

- 2** Meghan surveyed the students at her middle school at random to see whether students would be interested in a swim club. The table shows the results of the survey. Which conclusion can be drawn from the survey?

Grade	Yes	No
Sixth	37	12
Seventh	29	16
Eighth	21	10
Totals	87	38

2 _____

- A** A higher percentage of seventh grade students would join a swim club than sixth grade students.
- B** About a third of the eighth grade students surveyed would not be interested in a swim club.
- C** About 90 percent of the students surveyed would be interested in a swim club.
- D** The results suggest that now is not the time to start a swim club.

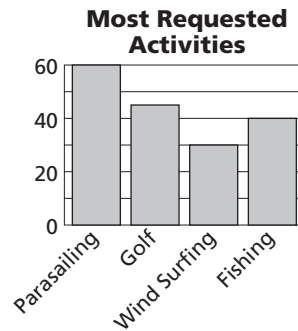
Standards Practice

Objective 4.05 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 3** A resort in the Outer Banks kept a list of the activities patrons inquired about during the summer months. The bar graph organizes the data. According to the bar graph, which of the following should the resort owners conclude?



3 _____

- A** Water sports are about as popular as golf.
- B** They should order about the same number of brochures on fishing as they do on golfing.
- C** They should order twice as many brochures for wind surfing as for parasailing.
- D** They have more patrons under age 30 than over age 50.

- 4** The table shows the income of a music store in each of the music categories for the years 2001 and 2002. Based on the data in the table, which of the following is a true statement?

4 _____

Income (dollars)		
	2001	2002
rock	12,430	15,680
musicals	6,950	8,990
country	9,560	10,740
alternative	7,840	9,250
rap	9,770	9,750

- A** Of all the categories, musicals had the least gain in sales.
- B** All categories had an increase in sales from 2001 to 2002.
- C** Country had less of a gain in sales than alternative.
- D** The best-selling categories had the greatest gains in sales.

- 5** If the store in Question 4 above wants to reduce overall stock, which is *most* reasonable?

5 _____

- A** Order less rock since it has the greatest sales.
- B** Order less musicals since they have the least sales.
- C** Offer alternative at half off.
- D** Order less rap since it shows a decline in sales.

Standards Practice

Objective 4.06



Design an experiment to test a theoretical probability; record and explain results.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** Luis has a bag that contains 2 blue marbles and 2 yellow marbles. He knows the probability of selecting a blue marble at random is $\frac{1}{2}$. The probability of selecting a yellow marble is also $\frac{1}{2}$. After a total of 50 trials, Luis had selected a blue marble from the bag 19 times and a yellow marble 31 times. Assuming all of the marbles are without defects and each is the same size, which of the following *best* explains these results?
- A** The number of trials is too low. A greater number of trials will result in experimental results that are closer to the theoretical probability of $\frac{1}{2}$.
- B** Luis must have recorded the results of the trials incorrectly, since the experimental results should have been closer to the theoretical probability.
- C** There must have been 3 yellow marbles in the bag and only one blue marble.
- D** Luis probably did not reach into the bag far enough, so the selection of the marbles was not random.

1 _____

- 2** To determine whether a quarter is a fair coin, Yesenia tossed the quarter 88 times. She got heads 42 times and tails 46 times. If the theoretical probability of getting heads is $\frac{1}{2}$, which statement best describes what Yesenia should conclude from her experiment?
- A** The number of trials is sufficient and the experimental and theoretical probabilities are close, so the quarter is fair.
- B** The number of trials is not sufficient, so she cannot determine whether the quarter is fair.
- C** Since the experimental probability is not exactly the same as the theoretical probability, the quarter is not fair.
- D** Since the experimental probability and theoretical probability are close, she should toss the quarter 12 more times. If the experimental probability is the same after 12 tosses, the quarter is fair.

2 _____

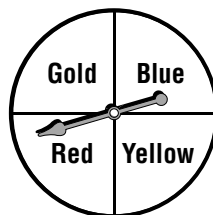
Standards Practice

Objective 4.06 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 3** A group of 4 friends is playing a game that uses the spinner shown. After spinning the spinner 24 times, it came up gold 12 times. They know the theoretical possibility of spinning gold is $\frac{1}{4}$. Which experiment *best* determines whether the spinner will give results close to the theoretical probability of $\frac{1}{4}$?

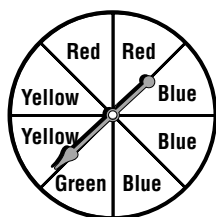


3 _____

- A** The 4 friends should ask 4 other people to take turns spinning the spinner 24 times and then compare the results to $\frac{1}{4}$.
- B** They should spin the spinner 24 more times to see if another color comes up 12 times.
- C** Each of the 4 friends should spin the spinner 24 times and compare each of the results to $\frac{1}{4}$.
- D** Each of the 4 friends should spin the spinner 24 times, combine their results, and then compare the total results to $\frac{1}{4}$.

- 4** A class is conducting a probability experiment using the spinner shown. The table shows the results of spinning the spinner 200 times. Which statement best describes the comparison of experimental and theoretical probabilities for the spinner?

4 _____



Spinner Results	
Blue	76
Red	27
Yellow	52
Green	45

- A** The experimental and theoretical probabilities are close.
- B** The experimental and theoretical probabilities for blue and yellow are close, but for red and green are not.
- C** The experimental and theoretical probabilities for blue and yellow are close, and it appears the probabilities for red and green could be switched.
- D** None of the probabilities are close.

Standards Practice

Objective 4.07



Make predictions based on the probabilities of simple events.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** Jill has a bag of 4 blue marbles, 5 red marbles, and some yellow marbles. **1** _____
If the probability of drawing a yellow marble from the bag is $\frac{1}{4}$, how many yellow marbles are in the bag?
A 3 **B** 4
C 6 **D** 12
- 2** A science teacher chose a girl to pass out test tubes to the students in class. If there are 28 students in the class and the probability of choosing a girl is $\frac{4}{7}$, how many of the students in the class are girls? **2** _____
A 4 **B** 7
C 12 **D** 16
- 3** If the probability of Kevin getting 3 heads when he tosses 3 fair coins is $\frac{1}{8}$, how many times will he *most likely* get 3 heads if he tosses 3 coins 120 times? **3** _____
A 8 **B** 15
C 24 **D** 40
- 4** Suppose Ione rolls a six-sided number cube. If the probability of rolling a number less than 3 is $\frac{1}{3}$, what is the *best* prediction of the number of times Ione will roll less than 3 if she rolls the number cube 150 times? **4** _____
A 5 **B** 15
C 50 **D** 100
- 5** A box contains 8 letter tiles that are the letter *R*, 3 that are the letter *A*, 3 that are the letter *S*, and the rest that are the letter *E*. If the probability of drawing the letter *E* is $\frac{3}{10}$, then how many letter tiles are the letter *E*? **5** _____
A 3 **B** 6
C 8 **D** 11

Standards Practice

Objective 4.07 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** A clothing manufacturer produces 5,500 T-shirts per week. A random sample of 100 shirts is tested and 8 are found to have defects. What would be the *best* prediction of the number of T-shirts that have defects each week of production? **6** _____
- A** 44 **B** 80
C 440 **D** 800
- 7** A toy factory randomly checked 500 yo-yos and found 10 that were defective. If the factory ships a carton of 200 yo-yos to a store, how many defective yo-yos can be predicted to be in the shipment? **7** _____
- A** 4 **B** 7
C 25 **D** 40
- 8** A random survey of 100 students at a middle school in Wilson showed that 28 students bring a sack lunch from home. If there are 250 students at the school, how many can be predicted to bring sack lunches? **8** _____
- A** 7 **B** 10
C 70 **D** 100
- 9** A city has a household population of 175,000. A random sample of 500 of the households revealed that 80 recycle newspapers. How many of the households in the city can be predicted to recycle newspapers? **9** _____
- A** 2,800 **B** 14,000
C 28,000 **D** 140,000
- 10** Out of a random sample of 1,500 people, 375 said they preferred thriller movies. How many people out of 700 could be predicted to prefer thrillers? **10** _____
- A** 150 **B** 175
C 325 **D** 475

Standards Practice

Objective 4.08



Use inductive and deductive reasoning to solve problems.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** Stephan works in a downtown office building. He left his office and took the stairs down 2 floors to fax some documents to a client. He then walked up 4 floors to a meeting on the fifth floor. On which floor is Stephan's office?

A first floor **B** third floor
C fifth floor **D** sixth floor

2 Jenna, Tomas, Dakota, and Kylie are standing in a cafeteria line at school. Jenna stands behind Dakota. Dakota is not first in line. Kylie is neither first nor last in line. Who is third in line?

A Jenna **B** Tomas
C Dakota **D** Kylie

3 Josh, Mark, Belinda, and Mikki each signed up for a different sport at a summer camp in the Blue Ridge Mountains. The sports they can participate in are swimming, tennis, golf, and volleyball. Mark does not want to play golf or tennis. Neither Josh nor Belinda signed up for swimming. Mikki does not want to play a sport with a ball. Josh does not like tennis. Who signed up for golf?

A Josh **B** Mark
C Belinda **D** Mikki

4 Jennie delivers sandwiches and drinks at a high-rise office building during the lunch hour. She left some sandwiches for office workers on one floor and told the receptionist she would be back to pick up another order. She rode the elevator down 6 floors to deliver more sandwiches and then up 8 floors for her last delivery, which is on the twelfth floor. Which is the floor that she needs to return to for the order?

A eighth floor **B** ninth floor
C tenth floor **D** eleventh floor

5 Ruben is shorter than Conrad, but taller than Sienna. Amelia is taller than Ruben, but Conrad is taller than Amelia. Who is the tallest?

A Ruben **B** Sienna
C Amelia **D** Conrad

Standards Practice

Objective 4.08 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 6** Angelina's father, mother, uncle, cousin, and sister are a cellist, a farmer, a mechanic, an opera singer, and a senator. The senator is married to the cellist. The opera singer is the nephew of the senator and the son of the mechanic. The cellist is the father of the farmer. The opera singer is Angelina's cousin. Who is the senator? **6** _____
- A** father **B** mother
C uncle **D** cousin
- 7** Which number has the following characteristics? **7** _____
- It is a multiple of 6.
The hundreds digit is odd and the tens digit is odd.
The ones digit is 4 times the tens digit.
- A** 114 **B** 132
C 186 **D** 198
- 8** The tutoring center at a middle school opened its doors to 6 students. An hour later, twice as many students came to the center. An hour after that, 14 more students came to the center, but half of the other students left. How many students were still at the center for tutoring? **8** _____
- A** 17 **B** 20
C 23 **D** 26
- 9** Chelsea counted 26 shooting stars in 20 minutes when she was watching the Perseids in August. How could Chelsea estimate the number of shooting stars she will see in an hour? **9** _____
- A** Multiply 26 by 3.
B Divide 26 by 3.
C Multiply 20 by 3.
D Divide 20 by 3.
- 10** The six members of a sanctuary for injured birds have decided to divide the birds into 3 equal sized groups. There are 54 birds in all. How many birds will be in each group? **10** _____
- A** 6 **B** 9
C 18 **D** 27

Standards Practice

Objective 4.09



Analyze problem situations, use an organized approach, and select appropriate strategies and technology to solve problems involving probability and statistics.

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 1** A juice company has decided to place a music CD in each bundle of its packaged juices. There are four different music CDs. It is equally likely that any one of the 4 CDs is in a bundled package. Which strategy could you use to find the minimum number of packages that you would need to buy to obtain all four CDs?

1 _____

- A** Add $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$ to arrive at a minimum of 4 packages that you would need to buy.
- B** Multiply $\frac{1}{4} \times \frac{1}{4}$ to arrive at a minimum of 16 packages that you would need to buy.
- C** Multiply $\frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} \times \frac{1}{4}$ to arrive at a minimum of 256 packages that you would need to buy.
- D** Multiply $\frac{1}{4} \times \frac{1}{4} \times \frac{1}{4} \times \frac{1}{4}$ and then divide by 4 to arrive a minimum of 64 packages that you would need to buy.

- 2** Students in a social studies class polled 50 students at their middle school to determine which location they would prefer for a vacation. The results of the poll are shown in the table.

Location	Number
Cape Hatteras	15
Wilmington	6
Mount Mitchell	18
Kill Devil Hills	4
Ocracoke Island	7

2 _____

The same students later polled 200 students at their school. The table shows the results of the poll. If the results of the second poll had been more like those of the first poll, how many more students would have preferred a vacation at Mount Mitchell?

Location	Number
Cape Hatteras	60
Wilmington	28
Mount Mitchell	61
Kill Devil Hills	18
Ocracoke Island	33

- A** 11 students
- B** 15 students
- C** 43 students
- D** 54 students

Standards Practice

Objective 4.09 (continued)



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 3** The pep club polled sixth, seventh, and eighth grade students to find out how many planned to attend the first away football game of the year. The table shows the results of the poll. If 180 students attended the game, how many were *most likely* sixth grade students?

Grade	Yes	No
Sixth	18	17
Seventh	15	13
Eighth	27	9

3 _____

- A** 18 **B** 32
C 54 **D** 63

- 4** A sandwich shop offers the selections shown in the table. How many possible combinations of sandwiches can a customer order?

Bread	Meat	Cheese
Italian	roast beef	American
French	ham	havarti
whole wheat	turkey	swiss
multi-grain		

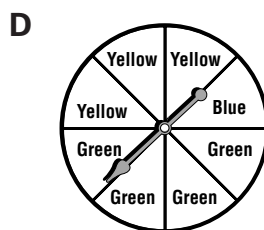
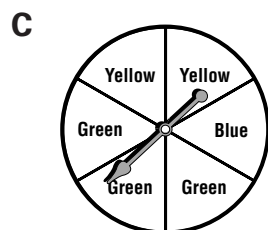
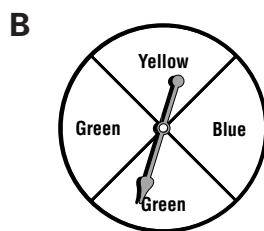
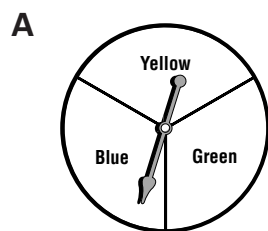
4 _____

- A** 10 **B** 21
C 24 **D** 36

- 5** The table shows sample data Manuel gathered on a spinner. Which spinner did he *most likely* use?

5 _____

Color	Frequency
Yellow	8
Blue	5
Green	11



Sample Test

Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

1 What is $7 + 7^2 \div 7 + (12 - 3)^2$?

A 137

B 95

C 90

D 9

1 _____

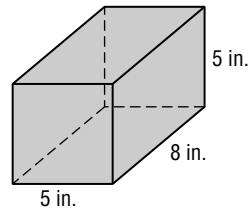
2 What is the volume of the rectangular box?

A 105 in^3

B 144 in^3

C 200 in^3

D 210 in^3



2 _____

3 At the bookstore, Aaron bought 3 paperback books for \$8.59 each and 2 magazines for \$4.89 each. Which solution shows *about* how much he spent at the bookstore, before tax?

A $(2 \times 9) + (3 \times 5) = \33

B $(3 \times 8) + (2 \times 5) = \34

C $(3 \times 9) + (2 \times 5) = \37

D $5(9 + 5) = \$70$

3 _____

4 Which comparison is true?

A $-3 > -2$

B $-17 < -18$

C $-1 > 1$

D $-24 < -23$

4 _____

5 Boyd makes deliveries to an office building in Charlotte. From his first delivery, he took the elevator up 6 floors and then he took another elevator down 8 floors, which is on the third floor of the building. On which floor was his first delivery?

A floor 2

B floor 4

C floor 5

D floor 6

5 _____

6 What rule describes the pattern shown below?

7, 21, 63, 189, 567, ...

A Multiply by 3.

B Add 14.

C Multiply by 4, subtract 7.

D Divide by 3.

6 _____

Go on 

Sample Test (continued)

Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 7** What is the area of a parallelogram that measures 14 centimeters at the base and is 7 centimeters high? **7** _____

A 35 cm^2 **B** 42 cm^2
C 49 cm^2 **D** 98 cm^2

- 8** Abby swims at a local pool every 5 days and volunteers at an animal rescue center every 7 days. If she swims on the same day that she volunteers at the rescue center, how many days will it be before she does both activities on the same day again? **8** _____

A 35 days **B** 24 days
C 12 days **D** 7 days

- 9** Out of a random sample of 100 people, 15 said that science fiction was their favorite type of book to read. How many people in a random sample of 60 could be expected to choose science fiction as their favorite type of book? **9** _____

A 1 **B** 3
C 6 **D** 9

- 10** The radius of a circle is 35 feet. What is the *approximate* circumference of the circle? **10** _____

A 110 ft **B** 220 ft
C 440 ft **D** 960 ft

- 11** On a 4-day hike along the Appalachian Trail in North Carolina, a group of hikers hiked 9.8 miles the first day, 8.3 miles the second day, and 10.4 miles the third day. If they plan to hike a total of 40 miles, how many miles will they hike on the fourth day? **11** _____

A 11.5 mi **B** 12.5 mi
C 27.5 mi **D** 28.5 mi

- 12** Andrea borrowed \$180 from her mom. If she pays her mom back according to the schedule in the table, how long will it take? **12** _____

Week	1	2	3	4	5
Total Paid (\$)	15	30	45	60	75

A 10 weeks **B** 11 weeks
C 12 weeks **D** 13 weeks



Sample Test (continued)**Test Practice**

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

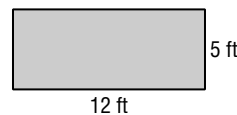
- 13** Alejandro bought 6 angelfish for \$12.90. If he buys 10 more angelfish, each for the same price, how much will he pay for all the angelfish?

A \$20.64 **B** \$21.50
C \$25.80 **D** \$34.40

13 _____

- 14** It costs \$4.25 to plant tulip bulbs in one square foot of the flowerbed. How much will it cost to plant the whole flowerbed in bulbs?

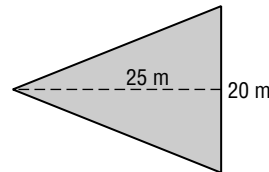
A \$25.50
B \$72.25
C \$144.50
D \$255.00



14 _____

- 15** What is the area of the triangle?

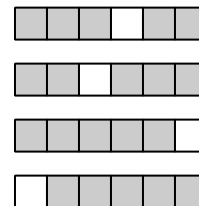
A 45 m²
B 90 m²
C 250 m²
D 500 m²



15 _____

- 16** In Mr. Mitchell's class, $\frac{5}{6}$ of 24 students went on a field trip to the Aquarium on Roanoke Island. According to the model of the problem, how many students went on the field trip?

A 5 **B** 6
C 20 **D** 24



16 _____

- 17** A punch bowl contains $1\frac{1}{4}$ gallons of punch. How many quarts of punch are in the punch bowl?

A 4 qt **B** 5 qt
C 6 qt **D** 7 qt

17 _____

- 18** What is $9.2 \div 0.4$?

A 0.23 **B** 2.3
C 23 **D** 230

18 _____



Sample Test (continued)

Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

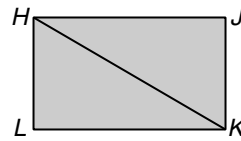
- 19** North Carolina's state bird, the cardinal, weighs between $1\frac{2}{5}$ and $1\frac{4}{5}$ ounces. *About* how many birds would it take to weigh a pound?

A less than 7 **B** between 7 and 8
C between 9 and 11 **D** more than 11

19 _____

- 20** If $\triangle HJK$ has an area of 216 square units, what is the area of rectangle $HJKL$?

A 4 times the area of $\triangle HJK$, or 864 units²
B twice the area of $\triangle HJK$, or 432 units²
C $\frac{1}{2}$ the area of $\triangle HJK$, or 108 units²
D $\frac{1}{4}$ times the area of $\triangle HJK$, or 54 units²



20 _____

- 21** What is $6\frac{2}{5} - 3\frac{3}{4}$?

A $2\frac{13}{20}$ **B** $2\frac{19}{20}$
C $3\frac{7}{20}$ **D** $10\frac{3}{20}$

21 _____

- 22** Mrs. Hargarty bought a used car in Gastonia for \$8,951. Which is the best estimate for the amount that she paid for the car including a state sales tax of 7%?

A about \$9,000 **B** about \$9,500
C about \$10,000 **D** about \$10,500

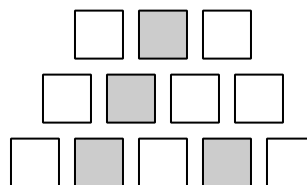
22 _____

- 23** Isabela is packing for a camping trip near Mt. Airy. If she always wears either a pair of shorts or pants and a shirt, how many outfits can she make if she takes 5 shirts, 3 pairs of shorts, and 2 pairs of pants?

A 10 **B** 16
C 25 **D** 30

23 _____

- 24** What is the ratio of shaded squares to non-shaded squares?



A 1 to 2
B 2 to 5
C 3 to 1
D 5 to 2

24 _____



Sample Test (continued)

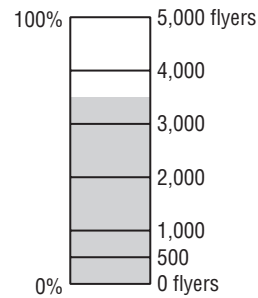
Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 25** An environmental club at a middle school is passing out flyers to fund support for a cleanup campaign of city parks. The club printed up 5,000 flyers. After 2 days, they had passed out 3,500 flyers. What percent of the flyers had they passed out?

A 3.5%
B 7%
C 35%
D 70%



25 _____

- 26** Which rule could you use to find the value of y when $x = 12$?

A Add 2.
B Multiply by 2.
C Multiply by 2, then add 7
D Multiply by 3, then subtract 2.

x	y
2	4
5	13
9	25
12	?
15	43

26 _____

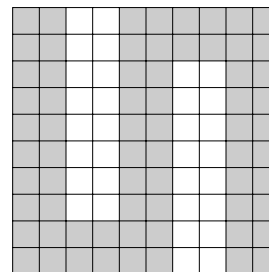
- 27** If you simplify $2(4^3 - 25) + 12 \div 4$, what is the result?

A 90
B 81
C 42
D 22.5

27 _____

- 28** What is the ratio of shaded units to the total number of units in the grid?

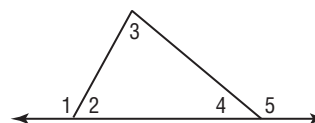
A $\frac{8}{17}$
B $\frac{17}{25}$
C $\frac{25}{17}$
D $\frac{17}{8}$



28 _____

- 29** Which describes $\angle 5$ in the figure?

A exterior
B interior
C complementary
D acute



29 _____

Go on

Sample Test (continued)

Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

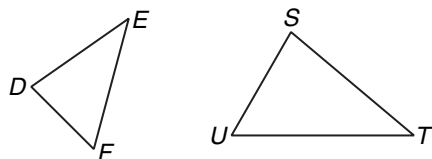
- 30** Mr. Northrup spent \$38 to buy 6 adults' tickets and 4 children's tickets to the 2003 North Carolina State Fair. If Mr. Northrup wants to determine the cost of each adult ticket a and each child's ticket c , which equation could he use? **30** _____

A $(6 \times a) + (4 \times c) = 38$
B $(6 + a) \times (4 + c) = 38$
C $(6 + 4) \times (a + c) = 38$
D $(a \times c) + (6 \times 4) = 38$

- 31** A manufacturer of spiral notebooks randomly checked a box of 500 notebooks and found that 8 had defects. If the manufacturer produces 2,000 notebooks per day, how many defective notebooks can be predicted in their daily production? **31** _____

A 24 **B** 32
C 40 **D** 48

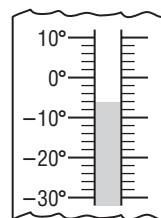
- 32** If $\triangle DEF$ is similar to $\triangle STU$, which angles are corresponding angles? **32** _____



A $\angle D$ and $\angle U$ **B** $\angle E$ and $\angle S$
C $\angle F$ and $\angle T$ **D** $\angle E$ and $\angle T$

- 33** The thermometer shows the temperature in degrees Centigrade for a day in January in Boone, North Carolina. What is the temperature? **33** _____

A 4° **B** -3°
C -6° **D** -8°



- 34** Cassie used $1\frac{1}{4}$ cups of orange juice, $2\frac{3}{4}$ cups of lemonade, and $1\frac{2}{3}$ cups sparkling water to make punch for a class party. Which is the best estimate for the number of cups that she made? **34** _____

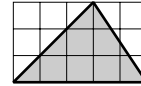
A 4 c **B** 5 c
C 6 c **D** 7 c



Sample Test (continued)**Test Practice**

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 35** What is the relationship between the area of the triangle and the area of the rectangle?



35 _____

- A** The area of the triangle is 7.5 units^2 , $\frac{1}{2}$ the area of the rectangle.
- B** The area of the triangle is 10 units^2 , $\frac{2}{3}$ the area of the rectangle.
- C** The area of the triangle is 11.25 units^2 , $\frac{3}{4}$ the area of the rectangle.
- D** The area of the triangle is 5 units^2 , $\frac{1}{3}$ the area of the rectangle.

- 36** Kiera is thinking about joining a tennis club to save money on tennis lessons. If she joins the club, she pays \$60 in membership fees and \$10 per lesson. If she does not join the club, lessons cost \$20 each. According to the spreadsheet below, how many lessons would Kiera have to take to make it *less* costly to join the club?

36 _____

	A	B	C
1	Lessons	Club Lessons (\$)	Non-club Lessons (\$)
2	1	70	20
3	2	80	40
4	3	90	60
5	4	100	80
6	5	110	100
7	6	120	120
8	7	130	140

- A** 4
- B** 5
- C** 6
- D** 7

- 37** Mrs. Wu has a Ming vase that she wants to display in her home. It has a circular base with a diameter of 28 centimeters. What is the approximate area of the base?

37 _____

- A** 88 cm^2
- B** 176 cm^2
- C** 616 cm^2
- D** $2,464 \text{ cm}^2$



Sample Test (continued)

Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

38 Which describes the two data sets?

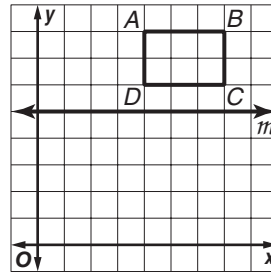
- I: 15, 60, 23, 56, 76, 92, 23, 84, 93
 II: 23, 87, 98, 23, 26, 57, 18, 91, 23

- A** The range is greater in I than in II.
B The median is greater in II than in I.
C The mean is the same in both data sets.
D They have the same mode.

38 _____

39 If $ABCD$ is reflected over line m , what will be the coordinates of $A'B'C'D'$?

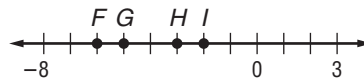
- A** $A'(4, 2)$, $B'(7, 2)$ $C'(7, 4)$, $D'(4, 4)$
B $A'(4, 2)$, $B'(7, 2)$ $C'(4, 4)$, $D'(7, 4)$
C $A'(4, 4)$, $B'(7, 4)$ $C'(7, 2)$, $D'(4, 2)$
D $A'(4, 4)$, $B'(7, 4)$ $C'(4, 2)$, $D'(7, 2)$



39 _____

40 Which letter shows the location of -3 on the number line?

- A** F
B G
C H
D I

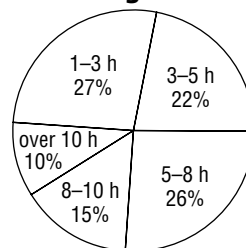


40 _____

41 The circle graph gives a breakdown of the hours students use the tutoring center. If the graph is based on 300 students, how many used the center 8 to 10 hours during the week?

- A** 78
B 45
C 30
D 15

Weekly Use of Tutoring Center



41 _____

42 Which rule describes the following pattern?

2, 7, 22, 67, 202, ...

- A** Multiply by 3, subtract 2. **B** Add 4.
C Multiply by 4, subtract 5. **D** Multiply by 3, add 1.

42 _____



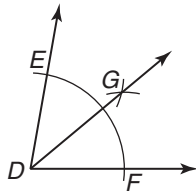
Sample Test (continued)**Test Practice**

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

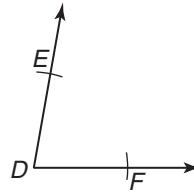
43 Which is a bisected angle?

43 _____

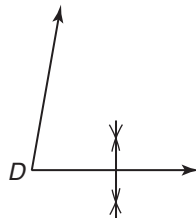
A



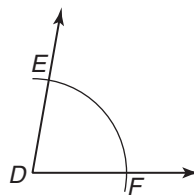
B



C



D



44 If the rule for the y -coordinate in an ordered pair is $x \div 3$, what ordered pair continues the pattern below?

44 _____

(66, 22), (60, 20), (54, 18), _____

A (52, 13)

B (48, 16)

C (42, 7)

D (30, 3)

45 The width w of a bay window in Mrs. Pena's living room is 3 times the height h of the window. Which expression shows the relationship between the width of the window and its height?

45 _____

A $\frac{3}{w} = h$

B $w = h + 3$

C $h = 3 \times w$

D $w = 3 \times h$

46 On a vacation at Ocean Isle Beach, Brandon can canoe, play tennis, play golf, visit a lighthouse, scuba dive, and collect seashells on Monday, Tuesday, Wednesday, and Thursday. In how many different ways can Brandon plan each of his days?

46 _____

A 6

B 10

C 20

D 24

47 A teacher handed out 48 test tubes and 32 slides for a science experiment. If each student received an equal number of test tubes and each student received an equal number of slides, what is the *greatest* number of students in the class?

47 _____

A 4

B 8

C 16

D 32

Go on

Sample Test (continued)

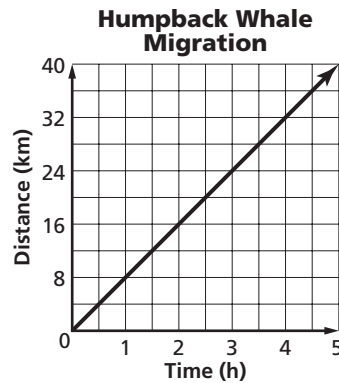
Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 48** According to the graph, how far has the humpback whale traveled after 3 hours?

A 20 km
B 22 km
C 24 km
D 28 km



48 _____

- 49** Janie bought 3.2 kilograms of shrimp for a wedding reception. How many grams of shrimp did she buy?

A 32,000 g **B** 3,200 g **C** 320 g **D** 32 g

49 _____

- 50** If Isai rides his bicycle 2.35 miles one way to school and back every weekday, *about* how many miles does he ride each week?

A 5 mi **B** 12 mi **C** 24 mi **D** 30 mi

50 _____

- 51** The Outdoor Club surveyed its 6th, 7th, and 8th grade members to determine which fund-raising activity most preferred. Which is a true statement based on the results shown in the table?

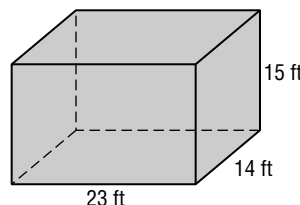
Activity	6th	7th	8th
bake sale	4	3	2
car wash	9	9	8
school dance	3	7	10
raffle	2	4	4

- A** Most students prefer to have a car wash to raise funds.
B There are more 7th grade members than either 6th or 8th grade.
C A raffle is the least fund-raising activity of all the grades.
D A school dance is the most preferred activity for 8th grade members and the least preferred for 6th grade members.

51 _____

- 52** What is the volume of the figure?

A 337 ft³
B 555 ft³
C 1,754 ft³
D 4,830 ft³



52 _____



Sample Test (continued)

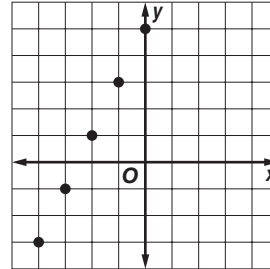
Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 53** Which of the following describes the relationship between x and y in the graph?

- A** For every increase of 1 in x , there is an increase of 1 in y .
B For every increase of 1 in x , there is an increase of 2 in y .
C For every increase of 2 in x , there is an increase of 1 in y .
D For every increase of 2 in x , there is an increase of 2 in y .



53 _____

- 54** The table shows miniature golf scores. Under par scores are represented as negative integers. The person with the least score wins. Who was the winner?

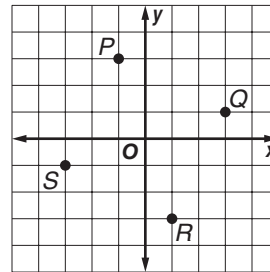
- A** Omari
B Selena
C Alden
D Lana

Player	Score
Omari	-2
Selena	-1
Alden	3
Lana	-5

54 _____

- 55** Which point is located at $(1, -3)$?

- A** P
B Q
C R
D S



55 _____

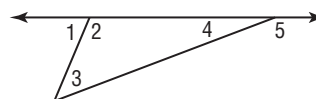
- 56** Joel hiked a trail in Nantahala National Forest at a rate of 2.4 miles per hour. Melanie hiked the same trail 1.25 times faster. At what rate did Melanie hike the trail?

- A** 1.15 mph
B 1.6 mph
C 3 mph
D 3.65 mph

56 _____

- 57** Which angle is supplementary to $\angle 2$?

- A** $\angle 1$
B $\angle 3$
C $\angle 4$
D $\angle 5$



57 _____

Go on

Sample Test (continued)

Test Practice

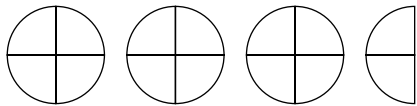


Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 58** A hatchling turtle can swim about 37 hundredths of a meter in a second. How do you write 37 hundredths in decimal notation? **58** _____

A 0.37 **B** 0.037
C 0.0037 **D** 0.00037

- 59** Lionel used the model to divide $3\frac{1}{2}$ by $\frac{1}{4}$. According to the model, what is the quotient? **59** _____



A $3\frac{1}{2}$ **B** 5
C 14 **D** 16

- 60** What is $5\frac{3}{4} + \frac{2}{3}$? **60** _____

A $4\frac{11}{12}$ **B** $5\frac{1}{12}$
C $5\frac{5}{12}$ **D** $6\frac{5}{12}$

- 61** If the rule for the y -coordinate in an ordered pair is $2x + 3$, what ordered pair continues the pattern below? **61** _____

(4, 11), (5, 13), (6, 15), _____

A (7, 10) **B** (7, 17)
C (7, 18) **D** (7, 33)

- 62** The table shows Davon's best running times for last week. Which shows the numbers in order from least to greatest? **62** _____

A 1.25, 1.21, 1.05, 1.01, 1.2
B 1.25, 1.21, 1.2, 1.05, 1.01
C 1.2, 1.01, 1.05, 1.21, 1.25
D 1.01, 1.05, 1.2, 1.21, 1.25

Day	Time (min)
Monday	1.25
Tuesday	1.05
Wednesday	1.21
Thursday	1.01
Friday	1.2

- 63** The nutrition label on a can of soup states that one serving contains 8% dietary fat. What is the decimal equivalent of 8%? **63** _____

A 8.0 **B** 0.8
C 0.08 **D** 0.008



Sample Test (continued)

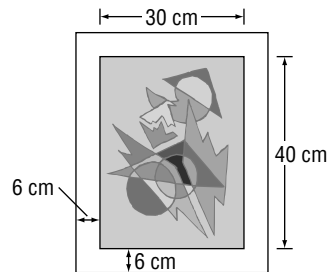
Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 64** Mason wants to frame the print with a 6-centimeter mat. If he hangs the print on the wall, how much wall space will he need?

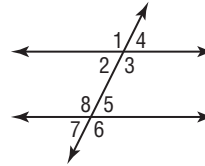
A 1,236 cm²
B 1,560 cm²
C 1,656 cm²
D 2,184 cm²



64 _____

- 65** Which describes the relationship between $\angle 2$ and $\angle 5$?

A vertical angles
B alternate interior angles
C alternate exterior angles
D corresponding angles



65 _____

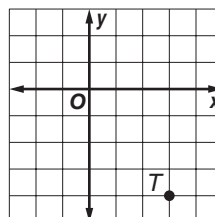
- 66** To test the theoretical probability that 1 out of 10 people are left-handed, Javon and Noemi designed an experiment. They placed 9 blue marbles in the bag to represent right-handed people and 1 yellow marble to represent left-handed people. In 25 trials, they randomly selected blue marbles 15 times and yellow marbles 10 times. Which of the following *best* describes the results of the trials?

A The results are inconclusive since the number of trials is too low to test the theoretical probability.
B Since the experimental probability of left-handedness is $\frac{2}{5}$ or 40%, the theoretical probability that $\frac{1}{10}$ or 10% of the population is left-handed must be wrong.
C The experimental results confirm the theoretical probability that $\frac{1}{10}$ of the population is left-handed.
D Since the experimental and theoretical probabilities are different, the design of the experiment is flawed.

66 _____

- 67** Which ordered pair names point T ?

A $(-3, -4)$
B $(-4, -3)$
C $(3, -4)$
D $(4, -3)$



67 _____



Sample Test (continued)

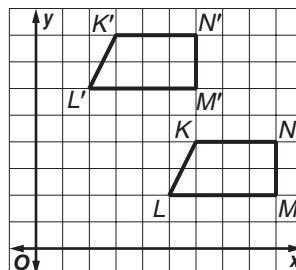
Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

- 68** Which describes the transformation of trapezoid $KLMN$ to trapezoid $K'L'M'N'$?

A right 4 units, down 3 units
B left 3 units, up 4 units
C up 2 units
D right 2 units



68 _____

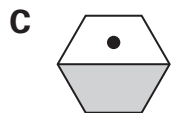
- 69** Which rule describes how to use the x values to find the corresponding y values?

A $x \times 3 + 1$
B $x + 3$
C $x \times 4$
D $x \times 5 - 1$

x	y
1	4
3	10
5	16
6	19
8	25

69 _____

- 70** Which figure has point symmetry?



70 _____

- 71** A circular carousel has a diameter of 56 inches. What is the area of the carousel? Use $\pi = 3.14$ and round to the nearest square inch.

A 176 in^2
B 352 in^2
C $2,462 \text{ in}^2$
D $9,847 \text{ in}^2$

71 _____

- 72** Ms. Higgins announced that students could sign up for extra lessons before the midterm science exam. Forty percent of the students in all of her classes signed up for the extra lessons. What fraction of her students is this?

A $\frac{1}{4}$
B $\frac{2}{5}$
C $\frac{2}{3}$
D $\frac{4}{5}$

72 _____

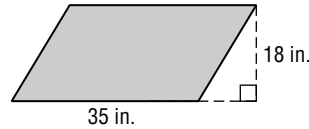


Sample Test (continued)**Test Practice**

Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

73 What is the area of the parallelogram?

- A** 315 in^2
- B** 472.5 in^2
- C** 630 in^2
- D** 945 in^2



73 _____

74 Which of the following describes the relationship between x and y in the table?

- A** a non-linear relationship in which the ordered pairs form an upside down v-shaped pattern
- B** a non-linear relationship in which the ordered pairs do not form a pattern
- C** a linear relationship in which the y values increase by 3 for every increase of 1 in the x values.
- D** a linear relationship in which the y values decrease by 2 for every increase of 1 in the x values.

x	y
9	7
8	5
7	3
6	2
5	1

74 _____

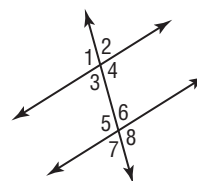
75 Which statement is true?

- A** $\frac{5}{8} > 65\%$
- B** $\frac{3}{5} < 60\%$
- C** $21\% = \frac{3}{7}$
- D** $\frac{6}{25} = 24\%$

75 _____

76 Which angles are alternate exterior angles?

- A** $\angle 1$ and $\angle 8$
- B** $\angle 2$ and $\angle 5$
- C** $\angle 1$ and $\angle 4$
- D** $\angle 3$ and $\angle 6$



76 _____

77 Otis and Shay picked a total of 26 bushels of peaches at their uncle's farm near Shallotte. If Shay picked 4 less than twice as many bushels as Otis, how many bushels did Otis pick?

- A** 6
- B** 10
- C** 14
- D** 16

77 _____

Go on

Sample Test (continued)

Test Practice



Read each question and choose the best answer. Then write the letter for the answer you have chosen in the blank at the right of each question.

78 Alessandra, Leanne, Maria, and Chloe are best friends, but each has a different homeroom at school. The homerooms are 102, 104, 106, and 108. Alessandra and Leanne walk to school with the person in homeroom 106. Chloe rides the bus to school. Leanne and the person in homeroom 102 take swimming lessons at the community pool on the weekends. Alessandra does not like to swim. Chloe, Maria, and the person in homeroom 108 buy lunch in the school cafeteria. Alessandra packs a sack lunch everyday. Who has room 104 as a homeroom?

- A** Alessandra
- B** Leanne
- C** Maria
- D** Chloe

78 _____

79 The table shows the number of tickets sold at an ice-skating rink. If the pattern continues, how many tickets will be sold the fifth week?

- A** 84
- B** 114
- C** 134
- D** 164

Week	Tickets Sold
1	14
2	24
3	44
4	74

79 _____

80 The following data sets show the number of minutes Randee spent on homework the first two weeks of school. Which describes the *ranges* of the two sets of data?

Week 1: 20, 45, 90, 15, 20

Week 2: 30, 45, 90, 120, 30

- A** The range in week 2 is 10 minutes greater than in week 1.
- B** The range in week 2 is 15 minutes greater than in week 1.
- C** The range in week 2 is 25 minutes greater than in week 1.
- D** The range in week 2 is 45 minutes greater than in week 1.

80 _____

