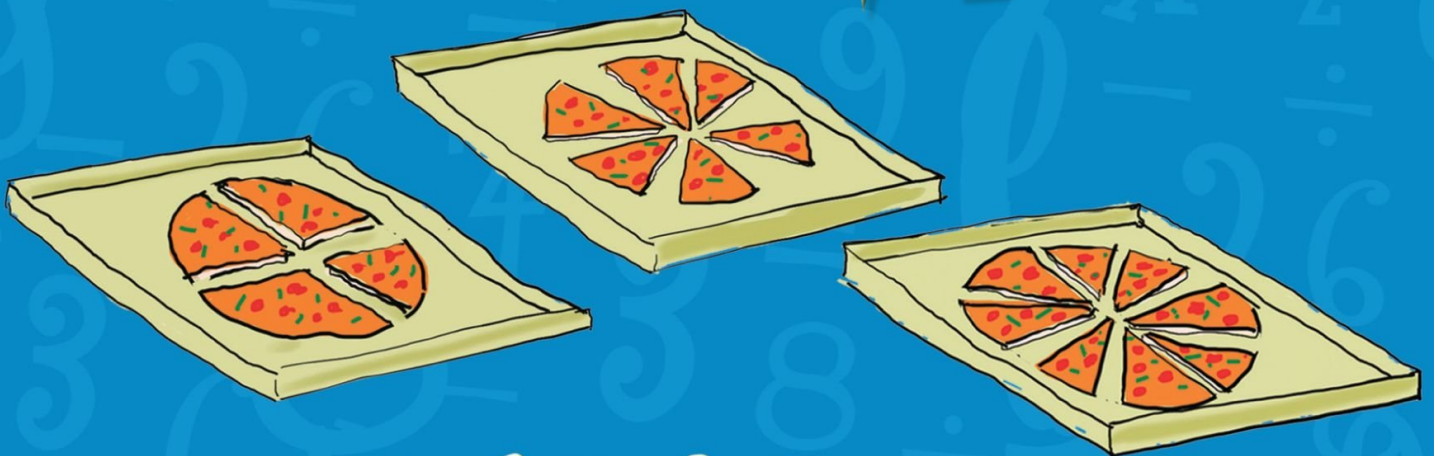


Math Is CAtegorical®



A Fraction's Goal— Parts of a Whole



by Brian P. Cleary
illustrated by Brian Gable



To Noreen,

who cuts my burdens in $\frac{1}{2}$

—B.P.C.



Fraction:
A part of a
whole number

Fractions are a portion,

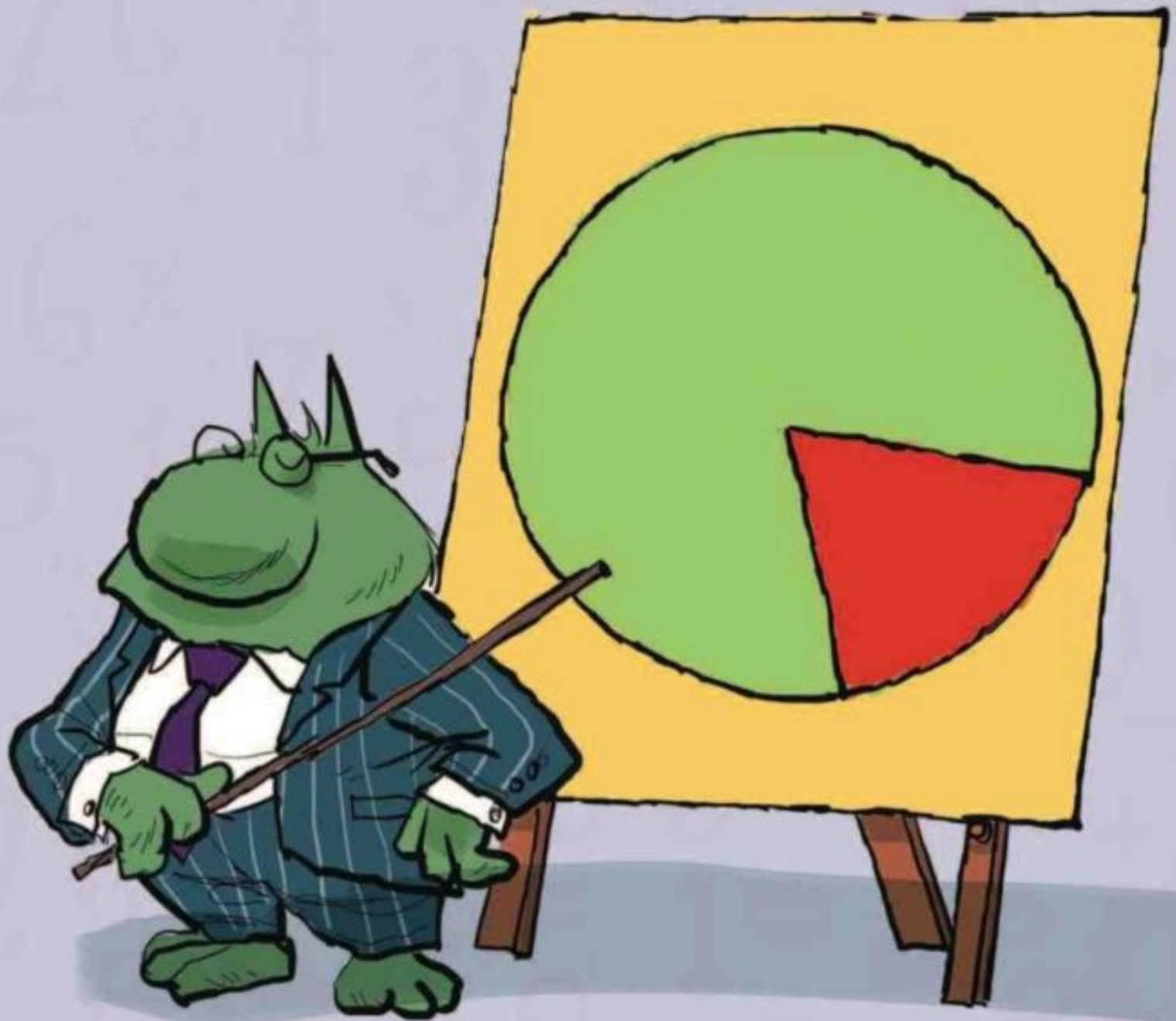


a piece,



or just a part

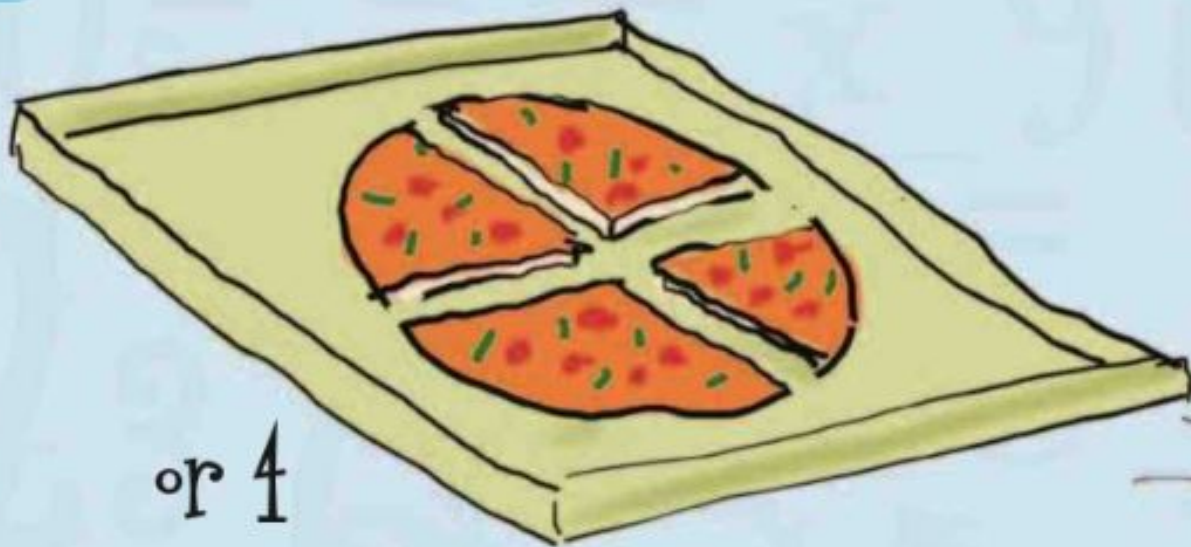




*of something that is larger,
like this segment on this chart.*

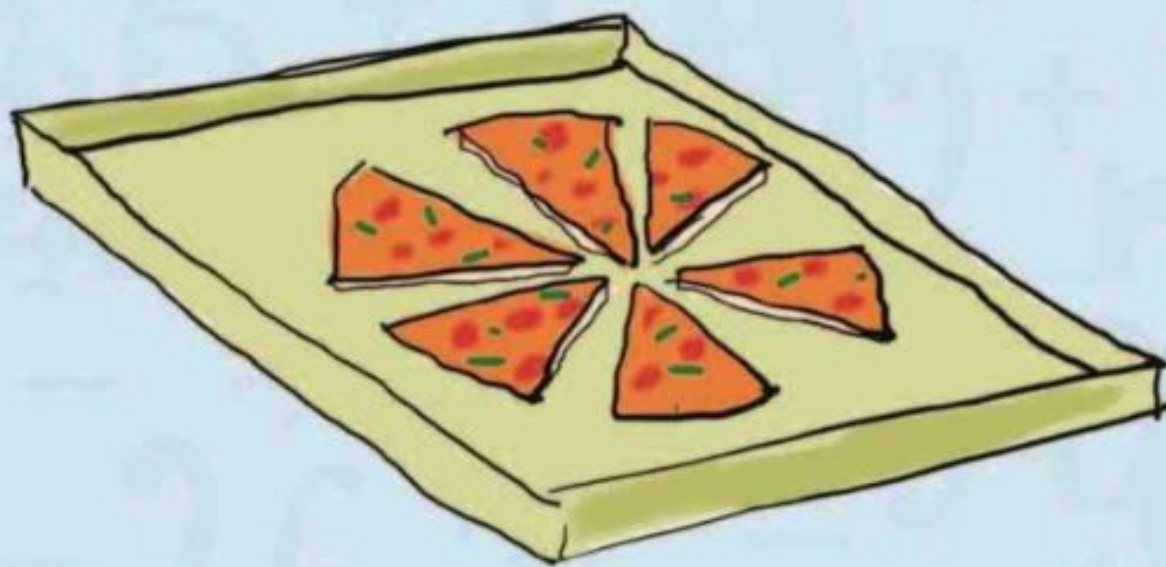
or look at this round pizza.
It can be cut in 2



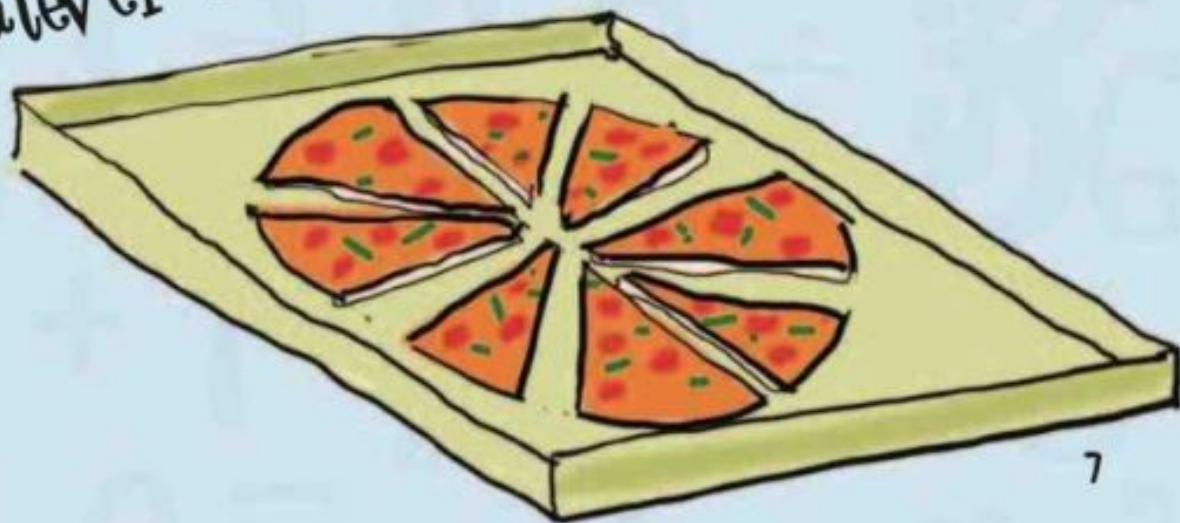


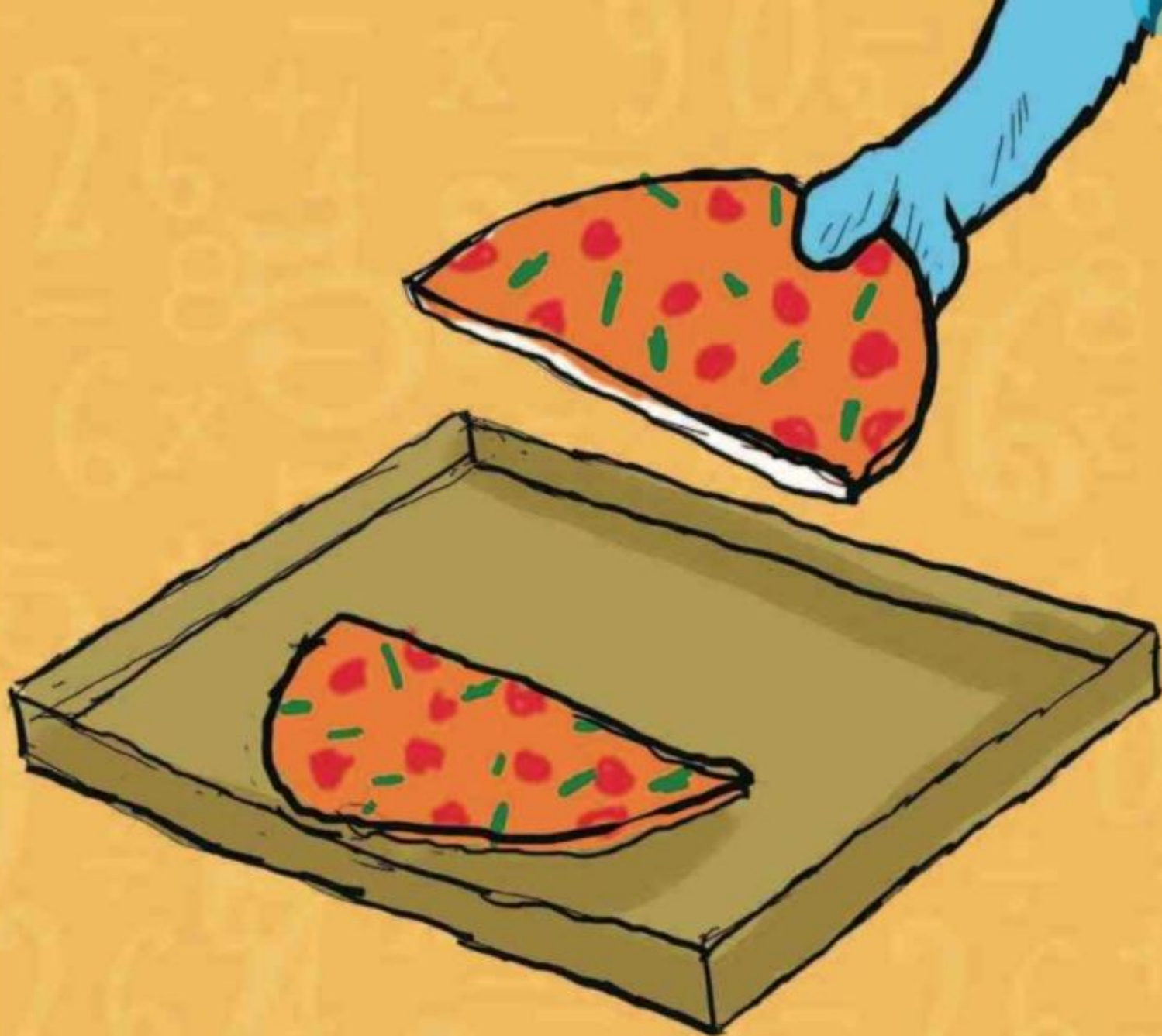
or 4

or 6



or 8 or more—
whatever best suits you.





But let's say that it's cut in 2
and you pick up 1 slice.

$$\frac{1}{2} = \text{ONE-HALF}$$



If you've got 1 piece out of 2,
it's $\frac{1}{2}$ to be precise.

Next, cut that pizza into 4



and take 1 single piece.





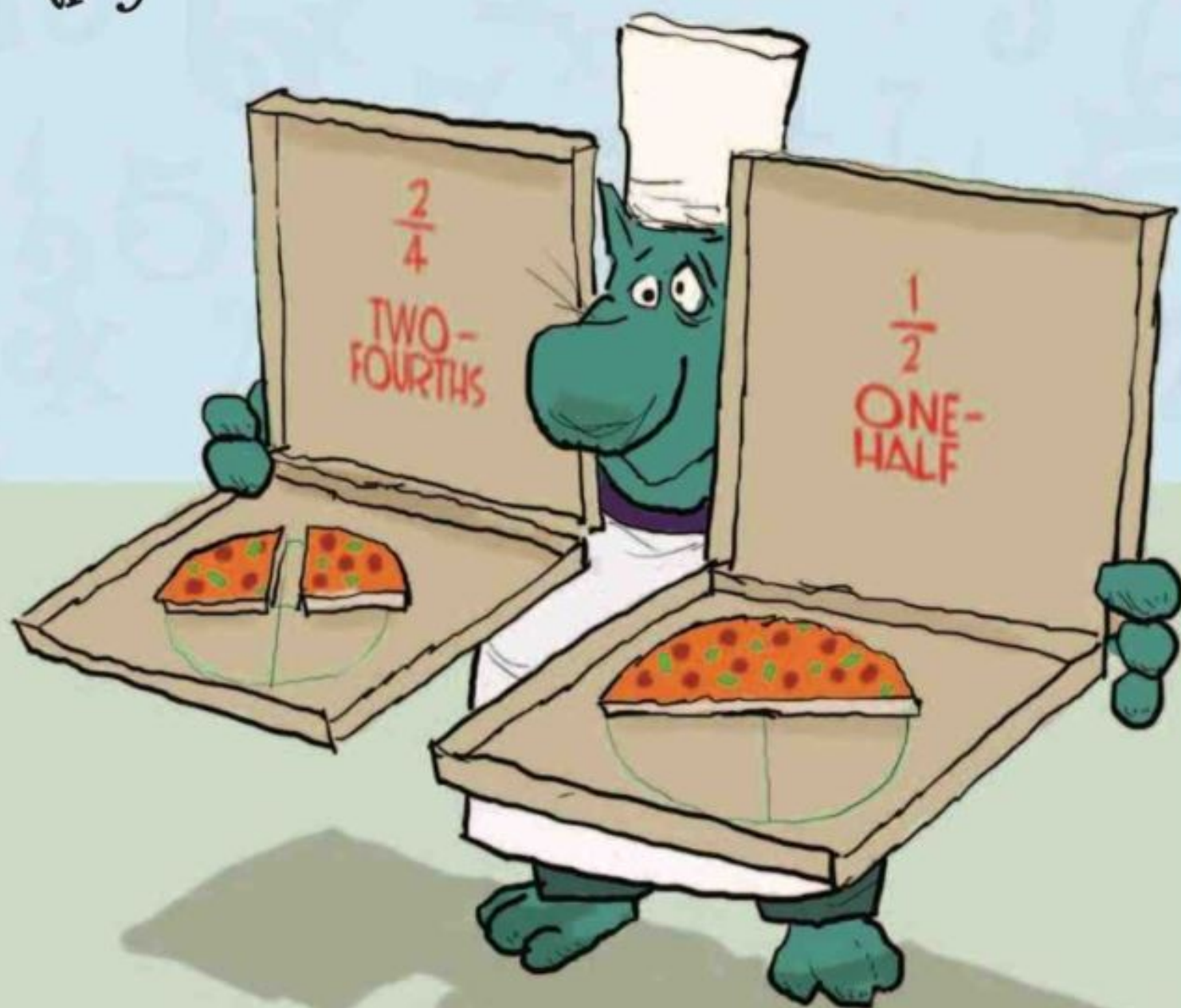
ONE-FOURTH

That's $\frac{1}{4}$ now—can you see how
the size has been decreased?

So now, if someone wants $\frac{1}{2}$,
2 slices will be needed.



$\frac{2}{4}$ and $\frac{1}{2}$ are the same;
they're different ways to read it.



Fractions also work with groups,
like $\frac{2}{3}$ of the players.

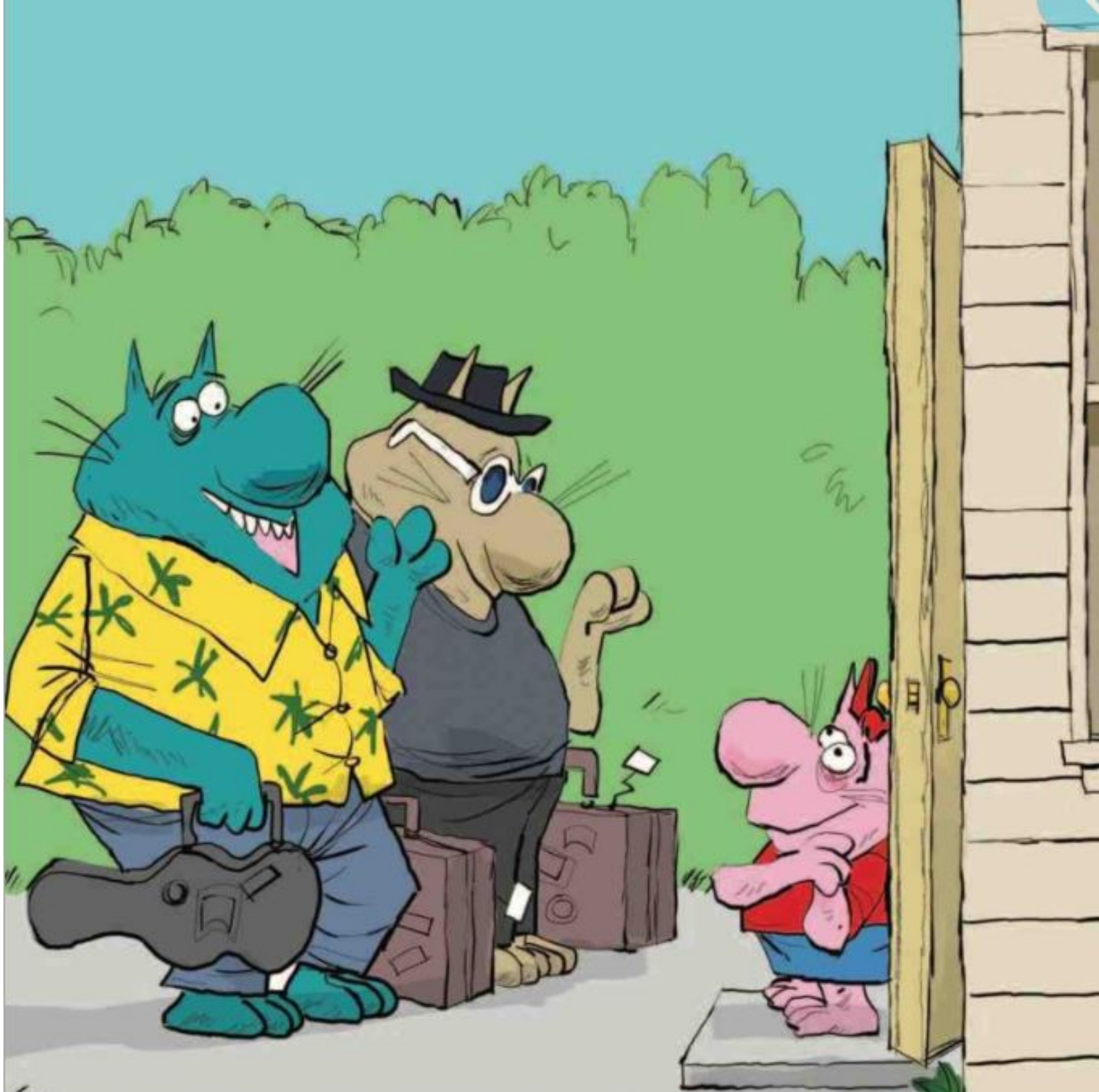


$\frac{7}{8}$ of jugglers,



and $\frac{1}{2}$ of the mayors.





Pretend you have 3 uncles
and 2 came for a visit.

That would mean $\frac{2}{3}$ were there.
That's not so hard now, is it?



Let's say the third one then shaved up
to join in all the fun.



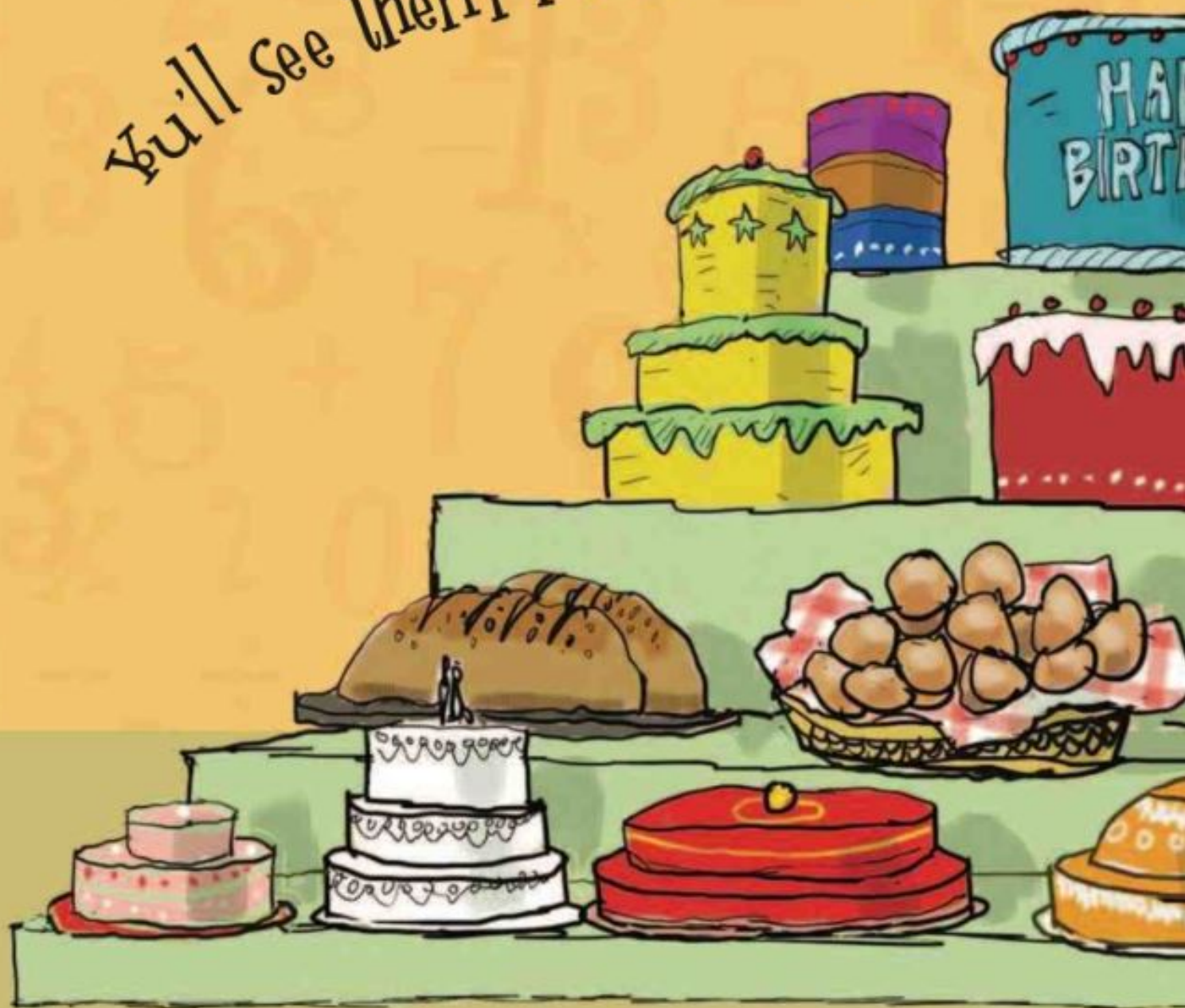


That's 1 whole group of uncles,
'cause $\frac{3}{3}$ equals 1.

Fractions come in handy
if you ever help with baking.



You'll see them in the recipes



for breads and cakes you're making.

$\frac{3}{4}$ tableSpoon of salt ...



add $\frac{2}{3}$ cup of flour ...





$\frac{5}{8}$ cup of chocolate chips



and bake for $\frac{1}{2}$ hour

The numerator is the word
for the number that's on top.

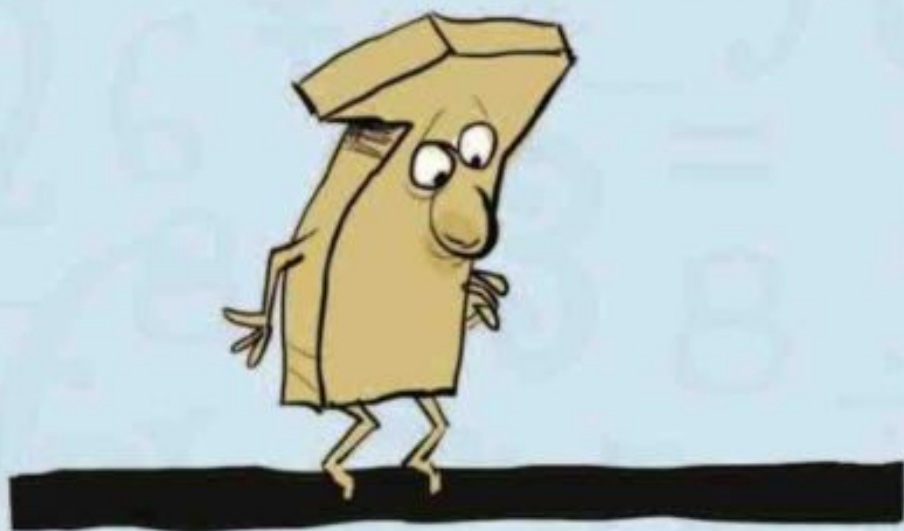




Like the 3 that's in, "We lost
 $\frac{3}{10}$ of this year's crop."



The number underneath the slash
is a denominator



Note that nearly all the time
this bottom number's greater

Fractions can be used in pizzas,
planes and cranes and plants.



$$\begin{array}{ccccccc} \frac{5}{7} & \frac{3}{4} & \frac{37}{49} & \frac{3}{4} & \frac{58}{71} & & \\ \frac{3}{8} & \frac{1}{12} & \frac{1}{2} & \frac{2}{3} & \frac{3}{73} & & \\ \frac{2}{9} & \frac{16}{19} & & & \frac{1}{9} & & \end{array}$$



You'll know more than just a portion
if you give them half a chance!

So, what is a fraction?

Do you know?

 $\frac{1}{2}$

one-half

 $\frac{1}{3}$

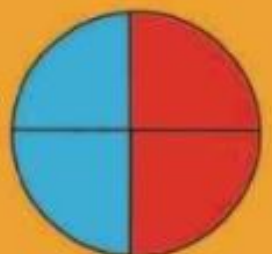
one-third

 $\frac{3}{3}$

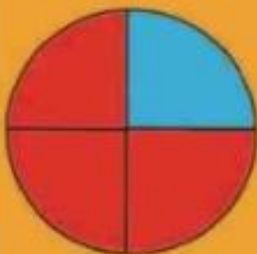
three-thirds

 $\frac{1}{4}$

one-fourth

 $\frac{2}{4}$

two-fourths

 $\frac{3}{4}$

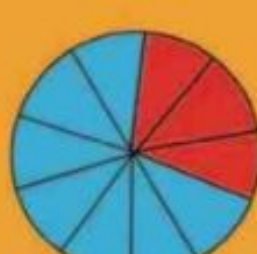
three-fourths

 $\frac{5}{8}$

five-eighths

 $\frac{7}{8}$

seven-eighths

 $\frac{3}{10}$

three-tenths

 $\frac{1}{12}$

one-twelfth



