

Centum Preparation 100 Days plan class 12 Maths

Q.N o.	DAY - 47
287	<p>Example 7.1</p> <p>For the function $f(x) = x^2, x \in [0, 2]$ compute the average rate of changes in the subintervals $[0, 0.5], [0.5, 1], [1, 1.5], [1.5, 2]$ and the instantaneous rate of changes at the points $x = 0.5, 1, 1.5, 2$.</p>
288	<p>Example 7.4</p> <p>A particle moves so that the distance moved is according to the law $s(t) = \frac{t^3}{3} - t^2 + 3$. At what time the velocity and acceleration are zero respectively?</p>
289	<p>Example 7.6</p> <p>A particle moves along a horizontal line such that its position at any time $t \geq 0$ is given by $s(t) = t^3 - 6t^2 + 9t + 1$, where s is measured in metres and t in seconds?</p> <ol style="list-style-type: none"> (1) At what time the particle is at rest? (2) At what time the particle changes direction? (3) Find the total distance travelled by the particle in the first 2 seconds.
290	<p>Example 7.7</p> <p>If we blow air into a balloon of spherical shape at a rate of 1000 cm^3 per second. At what rate the radius of the baloon changes when the radius is 7cm? Also compute the rate at which the surface area changes.</p>

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291	<p>Example 7.8</p> <p>The price of a product is related to the number of units available (supply) by the equation $Px + 3P - 16x = 234$, where P is the price of the product per unit in Rupees(₹) and x is the number of units. Find the rate at which the price is changing with respect to time when 90 units are available and the supply is increasing at a rate of 15 units/week.</p>
292	<p>Example 7.9</p> <p>Salt is poured from a conveyer belt at a rate of 30 cubic metre per minute forming a conical pile with a circular base whose height and diameter of base are always equal. How fast is the height of the pile increasing when the pile is 10 metre high?</p>
293	<p>Example 7.10</p> <p>A road running north to south crosses a road going east to west at the point P. Car A is driving north along the first road, and car B is driving east along the second road. At a particular time car A 10 kilometres to the north of P and traveling at 80 km/hr, while car B is 15 kilometres to the east of P and traveling at 100 km/hr. How fast is the distance between the two cars changing?</p>