

Question

The displacement of a particle along the X-axis is given as $x=5t^2+1$, where x is in metres and t in seconds. Calculate its instantaneous velocity 2 s.

- a) 46 m/s
- b) 40 m/s
- c) 20 m/s
- d) 25 m/s

Solution

$$v(t) = \frac{dx}{dt} = 2 * 5 * t = 10t$$

$$v(2) = 10 * 2 = 20 \text{ m/s}$$

Answer: c) $v(2) = 20 \text{ m/s}$