

Exercise 23

For the following exercises, consider an athlete running a 40-m dash. The position of the athlete is given by $d(t) = \frac{t^3}{6} + 4t$, where d is the position in meters and t is the time elapsed, measured in seconds.

Use the preceding exercise to guess the instantaneous velocity of the runner at $t = 2$ sec.

Solution

The instantaneous velocity of the runner at $t = 2$ sec is

$$v(2) = \frac{3(2)^2}{6} + 4 = 6 \text{ meters/second.}$$