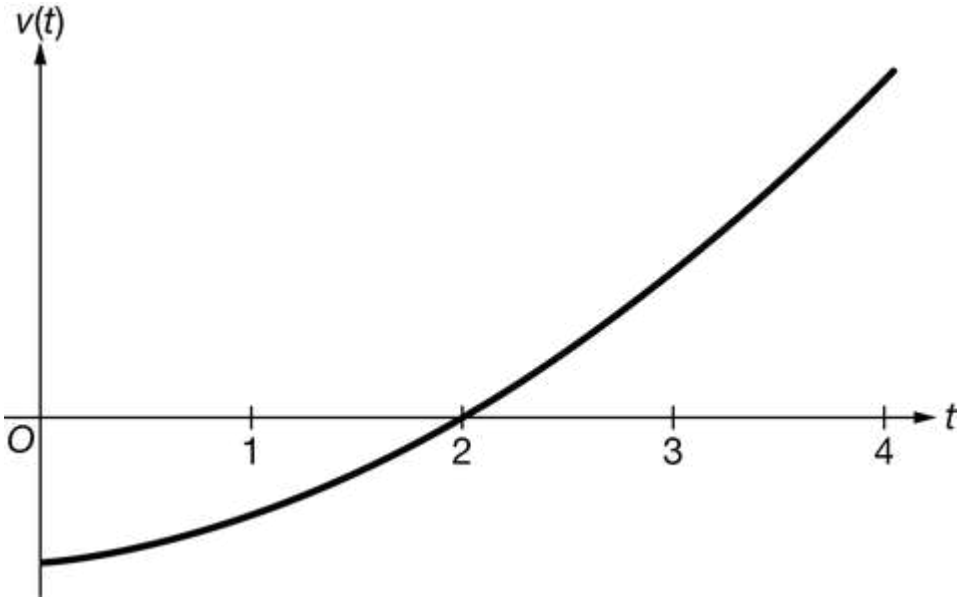
Quiz 4.2

Name

1.



A particle traveling on the x-axis has position $x(t)$ at time t. The graph of the particle's velocity $v(t)$ is shown above for $0 \le t \le 4$. Which of the following expressions gives the total distance traveled by the particle over the time interval $0 \le t \le 4$?

(A) $x(0) - x(4)$

(B) $x(4) - x(0)$

(C) $(x(0) - x(2)) + (x(4) - x(2))$

(D) $(x(2) - x(0)) + (x(2) - x(4))$

2. An object moves along a straight line so that at any time t, $0 \le t \le 9$, its position is given by $x(t) = 7 + 6t - t^2$. For what value of t is the object at rest?

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(A) $t = 3$

(B) $t = 6$

(C) $t = \frac{13}{2}$

(D) $t = 7$

3. A particle moves along the x-axis so that at any time $t \geq 0$ its position is given by $x(t) = te^{-at}$, where a is a positive constant. At what time t is the particle's position farthest to the right?

(A) $t = 0$

(B) $t = \frac{1}{a}$

(C) $t = a$

(D) There is no such value of a.