

2 Kinematics – Part 1 —Answers

Answers

2.1 (a) 200 m.

(b) 0 —it ends where it started.

2.2 (a) scalar (b) vector (c) scalar (d) vector.

2.3 $v = u + at = 4 + (1.5)(6) = 13 \text{ m s}^{-1}$.

2.4 $s = ut + \frac{1}{2}at^2 = (4)(6) + \frac{1}{2}(1.5)(36) = 24 + 27 = 51 \text{ m}$.

2.5 $v = u + at = 0 + (9.8)(1.5) = 14.7 \approx 15 \text{ m s}^{-1}$.

2.6 (a) $a = \frac{\Delta v}{\Delta t} = \frac{20}{8.0} = 2.5 \text{ m s}^{-2}$.

(b) $\text{area} = \frac{1}{2}(8.0)(20) = 80 \text{ m}$.

2.7 The acceleration is still 9.8 m s^{-2} downward (free fall). Gravity acts the whole time; the velocity is zero only for an instant, but it is still *changing* (from up to down), so the acceleration is not zero.