

Solutions

Each answer shows the steps, then the **result**.

2.1

(a)

- $(+300) + (-120) = +180 \text{ m}$

(b)

- $300 + 120 = 420 \text{ m}$

2.2

- $a = \frac{12 - 30}{6.0} = -3.0 \text{ m s}^{-2}$

2.3

- Slowing down — v and a have opposite signs, so the acceleration opposes the motion

2.4

- $v = \frac{250}{5.0} = +50 \text{ m s}^{-1}$

3.1 B

- velocity and displacement.

3.2 A

- v and a have the same sign, so the object speeds up

3.3

(a)

- 400 m

(b)

- 0 m — start and end are the same point

(c)

- $v_{avg} = 0/100 = 0 \text{ m s}^{-1}$

3.4

(a)

- $a = \frac{-5 - (+5)}{2.0} = -5.0 \text{ m s}^{-2}$

(b)

- Velocity is a vector; its direction reversed, so $\Delta v \neq 0$ even though the speed is unchanged