

Solutions

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

2.1

(a)

- scalar

(b)

- vector

(c)

- scalar

(d)

- vector

2.2

- take left as negative
- -4 m

2.3

- right positive: $(+50 \text{ m}) + (-30 \text{ m})$
- $+20$ m east

2.4

- right positive: $(+8 \text{ N}) + (-15 \text{ N})$
- -7 N — 7 N to the left

3.1 C

- acceleration is a vector; the others are scalars

3.2 B

- the sign gives the direction (south), and the speed is $|-25| = 25 \text{ m s}^{-1}$

3.3

(a)

- $x = (+2) + (-9) = -7 \text{ m}$

(b)

- 7 m from the origin, on the negative side

3.4

(a)

- $(+10) + (-4) + (-2) = +4 \text{ N}$

(b)

- No — the resultant is not zero ($+4 \text{ N}$), so the point is not in equilibrium