Solutions

Award method and answer marks as indicated; accept equivalent correct methods.

2.1

- $N = 18 + 12 = \mathbf{30}$; **walking** is more common.

2.2

- **B has the higher mean by 7 marks**, so its average performance was higher.

2.3

- **The route with range 3 min**, since its times have less spread.

2.4

- **The sample favours people interested in football**, so may not represent the whole school.

3.1

(a)

- $\bar{x}_A = 90/3 = \mathbf{30}$; $\bar{x}_B = 90/3 = \mathbf{30}$.

(b)

- $R_A = 40 - 20 = \mathbf{20}$; $R_B = 32 - 28 = \mathbf{4}$. **B is more consistent** over these days.

(c)

- **Only three days were observed and other days may differ**; equal sample means do not establish an always-more-popular shop.

3.2

(a)

- Means $\bar{t}_A = 50/5 = \mathbf{10}$ and $\bar{t}_B = 50/5 = \mathbf{10}$ min.
- Ranges are **4 and 8 min**.
- A is more consistent in this sample, with the smaller range.

(b)

- B has a delivery at **6 min**, faster than A's fastest 8 min.
- Equal means and a smaller spread do not imply A is always faster.
- Five deliveries may be too few or unrepresentative of other routes/days.

3.3

- Class P has the **higher mean**, so on average P scored better.
- Class Q has the **smaller range**, so Q's scores are more consistent.

3.4

- People at a gym are more likely to want a sports centre, so the sample is **biased**.