Solutions

Marking: **M1** a correct method, **A1** the correct answer.

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

2.1

- ordered: $2, 4, 5, 7, 7$
- median **5**; range $7 - 2 = \mathbf{5}$

2.2

- mode **5**

2.3

$$\frac{6 + 8 + 10 + 12}{4} = \frac{36}{4} = \mathbf{9}$$

2.4

- total = mean $\times$ number of values $= 8 \times 5 = 40$
- fifth number $= 40 - (6 + 7 + 9 + 10) = 40 - 32 = \mathbf{8}$

2.5

- on average Class A did better: its mean, 62, is higher than 58
- Class B's marks are more consistent: its range, 15, is smaller than 40

3.1

$$\frac{1(4) + 2(5) + 3(1)}{4 + 5 + 1} = \frac{17}{10} = \mathbf{1.7}$$

3.2

(a)

- middle pair 9 and 10

$$\frac{9 + 10}{2} = \mathbf{9.5}$$

(b)

- $\text{LQ} = \dfrac{6 + 7}{2} = 6.5$
- $\text{UQ} = \dfrac{12 + 13}{2} = 12.5$
- $\text{IQR} = 12.5 - 6.5 = \mathbf{6}$

3.3

- total $= 8 \times 5 = 40$, so $32 + x = 40$
- $x = \mathbf{8}$; check: in order $3, 7, 8, 10, 12$ the median is 8

3.4

- total of ten $= 15 \times 10 = 150$; without 24 the total is 126

$$\text{mean} = \frac{126}{9} = \mathbf{14}$$

3.5

(a)

- the median lies between the 10th and 11th values; running totals $3, 10, 15, \ldots$, so the 10th is 1 and the 11th is 2

$$\text{median} = \mathbf{1.5} \text{ goals}$$

(b)

- $\sum fx = 0 \times 3 + 1 \times 7 + 2 \times 5 + 3 \times 4 + 4 \times 1 = 0 + 7 + 10 + 12 + 4 = 33$

$$\text{mean} = \frac{\sum fx}{\sum f} = \frac{33}{20} = \mathbf{1.65} \text{ goals}$$