

Solutions

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

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

2.1

- $\text{mean} = \frac{4 + 7 + 7 + 9 + 13}{5} = \frac{40}{5} = \mathbf{8}$
- the list is already in order, so the median is the third value, **7**
- $\text{mode} = \mathbf{7}$, the only repeated value
- $\text{range} = 13 - 4 = \mathbf{9}$

2.2

- eight values, so the median is the mean of the 4th and 5th: $\frac{8 + 11}{2} = \mathbf{9.5}$
- $Q_1 = \frac{5 + 8}{2} = 6.5$ and $Q_3 = \frac{14 + 17}{2} = 15.5$
 $\text{IQR} = 15.5 - 6.5 = \mathbf{9}$

2.3

- $\text{total} = 14 \times 6$
 $\qquad\qquad\qquad = \mathbf{84}$

3.1

(a)

- midpoints 5, 15, 25, 35
- $\sum fx = 4(5) + 11(15) + 9(25) + 6(35) = 20 + 165 + 225 + 210 = 620$
- $\sum f = 30$
 $\frac{620}{30} = 20.67 \dots = \mathbf{20.7}$ minutes

(b)

- the class with the highest frequency, 11

$$\mathbf{10 < t \leq 20}$$

- all four classes have the same width here, so the highest frequency is also the highest frequency density

(c)

- the individual times inside each class are not known; the midpoint assumes they are spread evenly through the class

3.2

- the first five total $12 \times 5 = 60$
- all six total $13 \times 6 = 78$

$$78 - 60 = \mathbf{18}$$