Quartiles and box plots

6 questions | 12 marks

Equivalent correct methods earn the corresponding marks.

1. Summarise 1, 3, 4, 6, 8, 10, 11, 15. [2 marks]

Median 7; lower/upper half medians 3.5 and 10.5.

Answer: (1, 3.5, 7, 10.5, 15).

2. Find IQR for that set. [2 marks]

$10.5 - 3.5 = 7$.

Answer: 7.

3. Exclude the median to find Q_1, median, Q_3 for 2, 4, 7, 9, 11, 14, 18. [2 marks]

Exclude 9; use medians of 2, 4, 7 and 11, 14, 18.

Answer: 4, 9, 14.

4. A summary is (3, 8, 12, 18, 27). Find range and IQR. [2 marks]

$27 - 3 = 24;\ 18 - 8 = 10$.

Answer: Range 24; IQR 10.

5. Can box plots alone show which group contains more people? [2 marks]

They show summary positions and proportions, not counts.

Answer: No, unless sample sizes are given separately.

6. What does a long upper whisker suggest? [2 marks]

It does not prove why or reveal individual values.

Answer: Higher observations extend across a wide interval.