Shape and outliers

6 questions | 12 marks

Equivalent correct methods earn the corresponding marks.

1. Describe the main cluster and an unusual value in 7, 8, 8, 9, 9, 10, 28. [2 marks]

Six observations lie between 7 and 10; one is well above them.

Answer: Main cluster 7-10; 28 is unusually high.

2. Why is “28 is different, so remove it” not enough justification? [2 marks]

Check recording conditions and the source before deciding whether it is an error.

Answer: A genuine relevant observation must not be removed merely because it is unusual.

3. For 3, 4, 4, 5, 24, find the mean and median. [2 marks]

The total is 40, so $\text{mean} = 40 \div 5 = 8$.

The middle ordered observation is 4.

Answer: Mean 8; median 4.

4. A graph has a long tail towards large values. Is it left-skewed or right-skewed? [2 marks]

Large values lie to the right on the number axis.

Answer: Right-skewed.

5. The minimum is 12 and maximum 31. A genuine new observation of 50 is included. What happens to the range? [2 marks]

$\text{Original range} = 31 - 12 = 19.$

$\text{New range} = 50 - 12 = 38.$

Answer: It increases from 19 to 38.

6. A recorded plant height is 420 cm while other seedlings are 4-8 cm. Name two things to check before using it. [2 marks]

Review the original measurement and recording rules rather than inventing a correction.

Answer: For example, whether 4.20 cm was mistyped as 420 cm, and whether the same units or type of plant were used.