Worked answers | Statistics

Comparative stem-and-leaf/dot/frequency displays

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. Construct an ordered stem-and-leaf plot for 21, 15, 19, 12, 21, 25. Include a key. [3 marks]

Stem	Leaves
1	2 5 9
2	1 1 5

Key: 1 | 2 means 12

Order: 12, 15, 19, 21, 21, 25.

Use tens as stems and retain both 21 s.

Answer: Stem 1: 2 5 9. Stem 2: 1 1 5. Key $1 \mid 2 = 12$.

2. Use the supplied plot. How many values equal 24, and how many values are there altogether? [2 marks]

Key: 1 | 4 means 14 cm. Each leaf is one measurement.

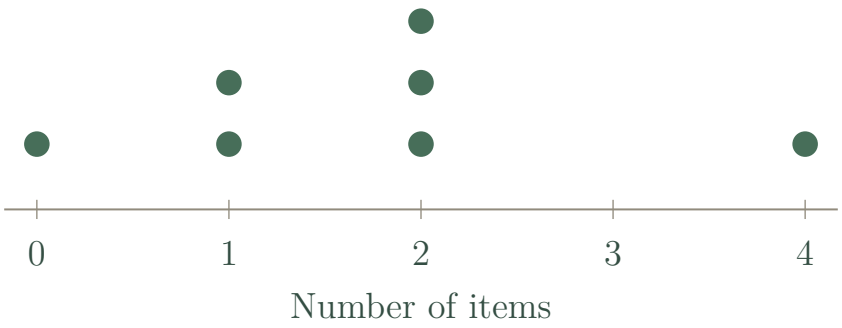
Stem	Leaves
1	2 4 4 7
2	0 1 4 4

Stem 2 contains two leaves of 4.

Count all eight leaves.

Answer: Two equal 24; eight altogether.

3. Draw a dot plot for 0, 1, 1, 2, 2, 2, 4 and state the mode. [3 marks]



Use equal numerical intervals.

Place one dot per observation; the tallest stack is at 2.

Answer: Stack counts are 1, 2, 3, 0, 1 at 0-4. Mode 2.

4. Values 1, 2, 3 have frequencies 4, 2, 3. Find the sample size. [2 marks]

Add frequencies, not the values.

$4+2+3=9$.

Answer: 9.

5. Why should two dot plots being compared use the same number scale? [2 marks]

A stretched axis changes the apparent spread.

A common scale makes comparison meaningful.

Answer: Equal distances should represent equal numerical differences.

6. Samples have 10 and 30 observations. Does the taller frequency bar necessarily mean a larger proportion? [2 marks]

4 out of 10 is 40%, but 9 out of 30 is 30%.

Compare relative frequencies when sizes differ.

Answer: No.