Dot Plots and Data Distributions

Use this key to check answers and read the explanations.

1. A dot plot represents these bird counts from six visits. The counts are 2, 4, 4, 4, 5 and 6. How many dots go above 4?

A. 3
B. 4
C. 2
D. 6

Correct answer: A. 3
Three visits had a count of 4. Each visit contributes one dot above that number.

2. A dot plot has 2 dots above 1, 1 dot above 2 and 4 dots above 3. How many observations does it show?

A. 6
B. 3
C. 7
D. 9

Correct answer: C. 7
Each dot represents a single observation. The three stacks contain 2 + 1 + 4 = 7 dots altogether.

3. A dot plot uses a number line from 3 to 7. The observations are 3, 3, 4, 6, 6 and 7. Which number on the line has no dots?

A. 3
B. 5
C. 4
D. 7

Correct answer: B. 5
The list skips 5. Values can appear on the number line even when no observation falls at that value.

4. A dot plot has 1 dot above 2, 2 dots above 4 and 1 dot above 5. Which list matches it?

A. 2, 3, 4, 5
B. 2, 2, 4, 5
C. 2, 4, 5, 5
D. 2, 4, 4, 5

Correct answer: D. 2, 4, 4, 5
Write each value once for every dot above it. Only 4 has two dots, so it is the only value that repeats.

5. A dot plot shows the scores 5, 7, 6, 7, 7, 8 and 8. Which value has the tallest stack?

A. 8
B. 7
C. 6
D. 5

Correct answer: B. 7
The score 7 occurs three times, more than any other value. The tallest stack identifies the mode.

6. The dot plot for seeds sprouted per pot represents 0, 1, 1, 2, 3, 3, 4 and 5. How many pots had at least 3 sprouts?

A. 4
B. 2
C. 3
D. 5

Correct answer: A. 4
At least 3 includes values equal to 3 as well as larger values. The qualifying observations are 3, 3, 4 and 5.

7. The observations on a dot plot are 4, 6, 6, 9, 11 and 12. What is the range?

A. 16
B. 6
C. 12
D. 8

Correct answer: D. 8
Subtract the smallest value from the largest. The difference between 12 and 4 is 8.

8. Six observations appear at 1, 2, 6, 7, 7 and 9. What is the median?

A. 7
B. 6
C. 6.5
D. 7.5

Correct answer: C. 6.5
With six observations, the middle lies between the third and fourth values. The average of 6 and 7 is 6.5.

9. A dot plot has 2 dots above 2, 1 above 4, 2 above 6 and 1 above 10. What is the mean observation?

A. 5
B. 5.5
C. 6
D. 7.5

Correct answer: A. 5
The data total is 2 + 2 + 4 + 6 + 6 + 10 = 30. Divide by the six dots to get 5.

10. Set A contains 3, 3, 4, 4, 5 and 5. Set B contains 1, 2, 4, 4, 6 and 7. What do the dot plots show?

A. Set B has a smaller median and a smaller range.
B. Set A has a larger median and a larger range.
C. The ranges match, and Set B has a larger median.
D. The medians match, and Set B has a larger range.

Correct answer: D. The medians match, and Set B has a larger range.
Each set has middle values of 4 and 4, giving a median of 4. The ranges are 2 for Set A and 6 for Set B.

11. A dot plot had six observations with a mean of 5. Five dots remain above 2, 3, 5, 6 and 7. What value should the missing dot show?

A. 6
B. 5
C. 7
D. 8

Correct answer: C. 7
Six observations with a mean of 5 must total 30. The remaining values total 23, so the missing dot belongs above 7.

12. A dot plot originally showed 2, 4, 4, 6 and 14. The 14 is corrected to 8. What happens to the mean and median?

A. The mean falls by 6 and the median stays at 4.
B. The mean falls by 1.2 and the median stays at 4.
C. The mean stays at 6 and the median falls by 1.2.
D. The mean and median each fall by 1.2.

Correct answer: B. The mean falls by 1.2 and the median stays at 4.
The correction lowers the total by 6 across five observations, reducing the mean by 1.2. The third value is still 4.

13. Combine a dot plot for 1, 2, 6 and 6 with a dot plot for 3, 4, 7, 8, 9 and 10. What is the median of all ten observations?

A. 7
B. 5
C. 5.75
D. 6

Correct answer: D. 6
In order, the ten values are 1, 2, 3, 4, 6, 6, 7, 8, 9 and 10. The middle two values are both 6.

14. A dot plot contains 1, 2, 2, 2, 4, 5 and 6. Which new list has a larger median and keeps both the original mode and range?

A. 1, 2, 2, 3, 4, 5, 6
B. 1, 2, 2, 4, 6, 6, 6
C. 0, 2, 2, 3, 4, 5, 6
D. 1, 1, 2, 2, 2, 4, 6

Correct answer: A. 1, 2, 2, 3, 4, 5, 6
The original mode is 2, the range is 5 and the median is 2. The list with 1, 2, 2, 3, 4, 5 and 6 keeps the mode and range, and its middle value is 3.

15. A dot plot has values of 0, 1, 2, 4, 5, 6 and 10. Which two dots should be removed so the five remaining values have a mean of 4.4 and a median of 5?

A. The dots at 1 and 5
B. The dots at 0 and 6
C. The dots at 2 and 4
D. The dots at 1 and 4

Correct answer: C. The dots at 2 and 4
The remaining total must be 5 times 4.4, or 22. Removing 2 and 4 subtracts 6 from 28 and leaves 0, 1, 5, 6 and 10, with 5 in the middle.