Dot Plots and Histograms

Name: _____	Date: _____	Score: _____ / 24

Quick Review

A **dot plot** shows each data value as a dot above a number line, so the **height of a stack** tells you how many times that value appears. A **histogram** groups data into equal **intervals** (or "bins") and draws a bar for each interval; the **bar height** is the **frequency** — how many values fall in that interval. Both displays help you see the **shape** of the data: where it clusters, where there are gaps, and which values are most common. Bars in a histogram *touch* because the intervals are connected.

◇ **Example:** A dot plot of pets owned shows: 0 has 2 dots, 1 has 4 dots, 2 has 3 dots, 3 has 1 dot. How many students were surveyed, and what value is most common?

⇒ Each dot stands for one student, so just add the dots: $2+4+3+1=10$ students were surveyed. To find the most common value, look for the tallest stack — the value 1 has 4 dots, more than any other. So 1 pet is the most common answer, and we call it the **mode**.

Answer: 10 students; mode $=1$

PRACTICE

Use the described dot plot or histogram to answer each question.

1. A dot plot has stacks: 1:2, 2:3, 3:1. How many data values? _____
2. Dot plot: 5:2, 6:4, 7:3. Which value is the mode? _____
3. Dot plot: 0:1, 1:3, 2:2. How many data values? _____
4. Dot plot: 10:1, 12:3, 14:2. What is the range? _____
5. Dot plot: 2:1, 3:2, 4:2, 5:1. How many data values? _____
6. Dot plot: 8:3, 9:1, 10:1. Which value is the mode? _____
7. Dot plot: 1:1, 2:1, 3:1, 4:1. What is the median? _____
8. Dot plot: 5:2, 6:2, 7:2. How many data values? _____
9. Histogram bins: 0–4:3, 5–9:5. How many data values? _____
10. Histogram: 0–9:2, 10–19:6, 20–29:4. Total values? _____
11. Histogram: 0–9:2, 10–19:6, 20–29:4. Tallest bar interval? _____
12. Histogram: 1–5:4, 6–10:4, 11–15:2. Total values? _____
13. Dot plot: 3:4, 4:2, 5:2. How many data values? _____
14. Dot plot: 3:4, 4:2, 5:2. What is the mode? _____
15. Histogram: 10–19:1, 20–29:3, 30–39:1. Total values? _____
16. Dot plot: 0:2, 1:2, 2:2, 3:2. Total values? _____
17. Histogram: 0–4:5, 5–9:3, 10–14:2. Tallest bar interval? _____
18. Dot plot: 7:1, 8:1, 9:3, 10:1. What is the mode? _____
19. Dot plot: 2:3, 4:3. What is the range? _____
20. Histogram: 1–10:2, 11–20:2, 21–30:2. Total values? _____

♦ Word Problems

21. A dot plot shows how many books 12 students read last month: 0 has 1 dot, 1 has 3 dots, 2 has 5 dots, 3 has 2 dots, 4 has 1 dot. How many students read more than 1 book? _____

22. A histogram of test scores has these intervals: 60–69 has 4 students, 70–79 has 8, 80–89 has 6, 90–99 has 2. How many students scored at least 80? _____

23. A dot plot of goals scored shows: 0 has 2 dots, 1 has 4 dots, 2 has 3 dots, 3 has 1 dot. Find the total number of goals scored by all players. _____

24. A histogram of daily steps (in thousands) has: 0–4 with 1 day, 5–9 with 3 days, 10–14 with 3 days. Over how many days was the data collected, and which interval is least common? _____

Answer Keys

1. 6
2. 6
3. 6
4. 4
5. 6
6. 8
7. $\frac{5}{2}$
8. 6
9. 8
10. 12
11. 10–19
12. 10
13. 8
14. 3
15. 5
16. 8
17. 0–4
18. 9
19. 2
20. 6
21. 8 students
22. 8 students
23. 13 goals
24. 7 days; 0–4 interval

Step-by-Step Explanations

1. Add the dots in every stack: $2 + 3 + 1 = 6$.
2. The tallest stack is at 6 with 4 dots, so 6 is the mode.
3. Sum the dots: $1 + 3 + 2 = 6$.
4. The values go from 10 to 14, so the range is $14 - 10 = 4$.
5. Add: $1 + 2 + 2 + 1 = 6$.
6. The stack at 8 is tallest with 3 dots, so 8 is the mode.
7. The values are $1, 2, 3, 4$; the median is the average of 2 and 3, which is 2.5.
8. Sum the dots: $2 + 2 + 2 = 6$.
9. Add the bar heights (frequencies): $3 + 5 = 8$.
10. Sum the frequencies: $2 + 6 + 4 = 12$.
11. The interval 10–19 has the highest frequency, 6.
12. Add the frequencies: $4 + 4 + 2 = 10$.
13. Sum the dots: $4 + 2 + 2 = 8$.
14. The tallest stack is at 3 with 4 dots.
15. Add the frequencies: $1 + 3 + 1 = 5$.
16. Sum the dots: $2 + 2 + 2 + 2 = 8$.
17. The interval 0–4 has the greatest frequency, 5.
18. The tallest stack is at 9 with 3 dots.
19. The values are 2 and 4, so the range is $4 - 2 = 2$.
20. Add the frequencies: $2 + 2 + 2 = 6$.
21. "More than 1" means 2, 3, or 4 books. Add those stacks: $5 + 2 + 1 = 8$ students.
22. "At least 80" covers the 80–89 and 90–99 bins: $6 + 2 = 8$ students.
23. Multiply each value by its number of dots and add: $0(2) + 1(4) + 2(3) + 3(1) = 0 + 4 + 6 + 3 = 13$ goals.
24. Add the frequencies: $1+3+3 = 7$ days. The 0–4 interval has the smallest frequency, 1, so it is least common.

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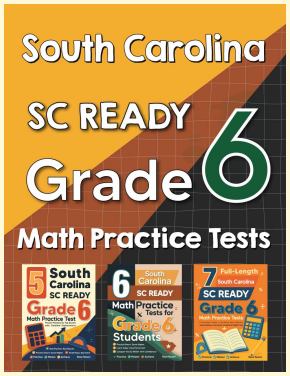

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