Dot Plots and Histograms

Dot plots and histograms: Mistakes and missing information

Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

A dot plot shows one dot for every observation, including repeats: $1, 2, 2, 4$ gives frequencies $1:1, 2:2, 4:1$. A histogram groups values into intervals and uses touching bars. For intervals $0 \le x < 5$ and $5 \le x < 10$, data $2, 5, 7$ give counts $1, 2$; the boundary value 5 enters the second interval.

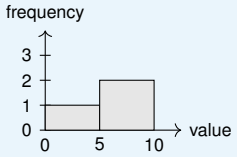
Worked example

Group the three measurements. Intervals are $0 \le x < 5$, $5 \le x < 10$. Data: $2, 5, 7$. Draw touching bars and give their heights.

1. Count data in each interval: $0 \le x < 5 : 1$; $5 \le x < 10 : 2$.

2. Total frequency $= 1 + 2 = 3$. Boundary values enter the interval beginning at that value, not the preceding one.

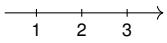
Answer: Bar heights $1, 2$; total 3.



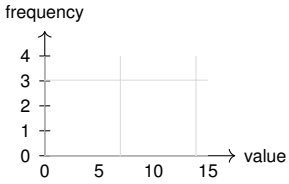
Practice Problems

Show your thinking.

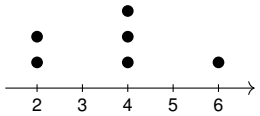
1. A student puts only one dot over each distinct value. Draw the corrected plot. Data: $1, 1, 2, 3, 3, 3$. Draw one dot per observation, then give every nonzero frequency.



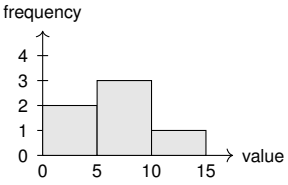
2. A student puts every 5 in the first interval. Correct the histogram. Intervals are $0 \le x < 5$, $5 \le x < 10$, $10 \le x < 15$. Data: $0, 5, 5, 9, 10, 14$. Draw touching bars and give their heights.



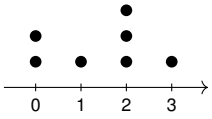
3. Recover the full frequency table from the plotted observations. Read the display and give every nonzero frequency, the total count, and the range.



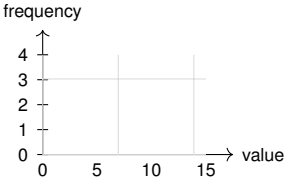
4. Recover interval counts from this histogram. Intervals are $0 \le x < 5$, $5 \le x < 10$, $10 \le x < 15$. Read every bar height and the total number of observations.



5. A student says repeated values count once. Use the display to correct the total. Read the display and give every nonzero frequency, the total count, and the range.



6. A student draws separated bars for these continuous intervals. Draw the corrected touching bars. Intervals are $0 \le x < 5$, $5 \le x < 10$, $10 \le x < 15$. Data: $2, 3, 5, 8, 10, 10, 13$. Draw touching bars and give their heights.



Answer Key

1. Value:frequency $1:2, 2:1, 3:3$; total 6; range 2.
2. Bar heights $1, 3, 2$; total 6.
3. Value:frequency $2:2, 4:3, 6:1$; total 6; range 4.
4. Bar heights $2, 3, 1$; total 6.
5. Value:frequency $0:2, 1:1, 2:3, 3:1$; total 7; range 3.
6. Bar heights $2, 2, 3$; total 7.

Step-by-Step Solutions

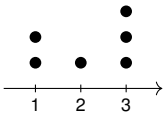
Follow each calculation, then check your own work.

Problem 1

1. Tally each value separately: $1:2, 2:1, 3:3$.

2. Total dots $= 2 + 1 + 3 = 6$; repeated values each contribute a dot.

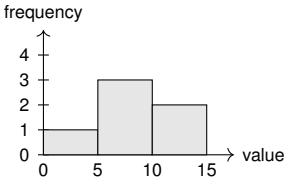
3. Range $= 3 - 1 = 2$.



Problem 2

1. Count data in each interval: $0 \le x < 5 : 1$; $5 \le x < 10 : 3$; $10 \le x < 15 : 2$.

2. Total frequency $= 1 + 3 + 2 = 6$. Boundary values enter the interval beginning at that value, not the preceding one.



Problem 3

1. Tally each value separately: $2:2, 4:3, 6:1$.

2. Total dots $= 2 + 3 + 1 = 6$; repeated values each contribute a dot.

3. Range $= 6 - 2 = 4$.

Problem 4

1. Read each bar: $0 \le x < 5 : 2$; $5 \le x < 10 : 3$; $10 \le x < 15 : 1$.

2. Total frequency $= 2 + 3 + 1 = 6$. Boundary values enter the interval beginning at that value, not the preceding one.

Problem 5

1. Tally each value separately: $0:2, 1:1, 2:3, 3:1$.

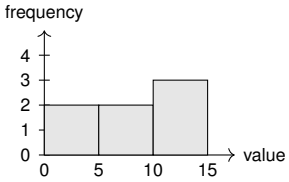
2. Total dots $= 2 + 1 + 3 + 1 = 7$; repeated values each contribute a dot.

3. Range $= 3 - 0 = 3$.

Problem 6

1. Count data in each interval: $0 \le x < 5 : 2$; $5 \le x < 10 : 2$; $10 \le x < 15 : 3$.

2. Total frequency $= 2 + 2 + 3 = 7$. Boundary values enter the interval beginning at that value, not the preceding one.



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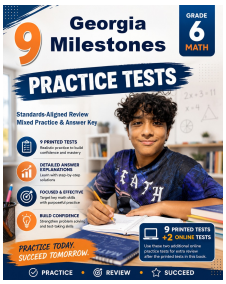

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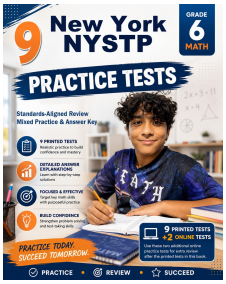

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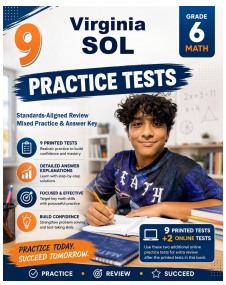

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