Dot Plots and Histograms

Dot plots and histograms: Applications and decisions

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.

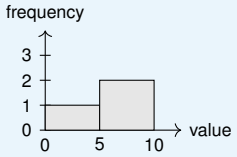
Worked example

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.

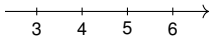
Answer: Bar heights $1, 2$; total 3.



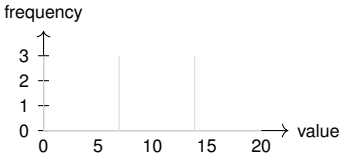
Practice Problems

Show your thinking.

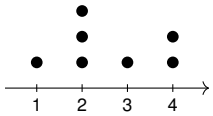
1. Construct a display of daily practice times, in minutes. Data: $3, 4, 4, 5, 6, 6, 6$. Draw one dot per observation, then give every nonzero frequency.



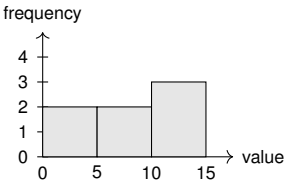
2. Design grouped bars for trip times in minutes. Intervals are $0 \le x < 5$, $5 \le x < 10$, $10 \le x < 15$, $15 \le x < 20$. Data: $2, 6, 8, 10, 12, 16, 18$. Draw touching bars and give their heights.



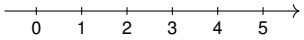
3. Read the survey display of pets per home. Read the display and give every nonzero frequency, the total count, and the range.



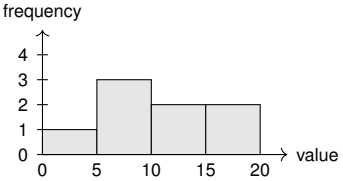
4. Read grouped plant heights in cm. Intervals are $0 \le x < 5$, $5 \le x < 10$, $10 \le x < 15$. Read every bar height and the total number of observations.



5. A report loses one copy of each repeated score. Draw a corrected game-score plot. Data: $0, 1, 1, 3, 3, 3, 5$. Draw one dot per observation, then give every nonzero frequency.



6. Recover the count of deliveries from the time intervals. Intervals are $0 \le x < 5$, $5 \le x < 10$, $10 \le x < 15$, $15 \le x < 20$. Read every bar height and the total number of observations.



Answer Key

1. Value:frequency $3:1, 4:2, 5:1, 6:3$; total 7; range 3.
2. Bar heights $1, 2, 2, 2$; total 7.
3. Value:frequency $1:1, 2:3, 3:1, 4:2$; total 7; range 3.
4. Bar heights $2, 2, 3$; total 7.
5. Value:frequency $0:1, 1:2, 3:3, 5:1$; total 7; range 5.
6. Bar heights $1, 3, 2, 2$; total 8.

Step-by-Step Solutions

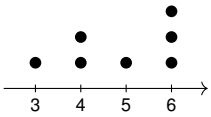
Follow each calculation, then check your own work.

Problem 1

1. Tally each value separately: $3:1, 4:2, 5:1, 6:3$.

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

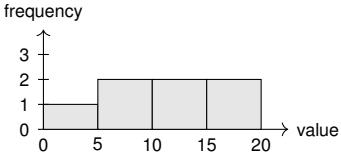
3. Range $= 6 - 3 = 3$.



Problem 2

1. Count data in each interval: $0 \le x < 5 : 1$; $5 \le x < 10 : 2$; $10 \le x < 15 : 2$; $15 \le x < 20 : 2$.

2. Total frequency $= 1 + 2 + 2 + 2 = 7$. Boundary values enter the interval beginning at that value, not the preceding one.



Problem 3

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

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

3. Range $= 4 - 1 = 3$.

Problem 4

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

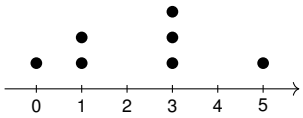
2. Total frequency $= 2 + 2 + 3 = 7$. Boundary values enter the interval beginning at that value, not the preceding one.

Problem 5

1. Tally each value separately: $0:1, 1:2, 3:3, 5:1$.

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

3. Range $= 5 - 0 = 5$.



Problem 6

1. Read each bar: $0 \le x < 5 : 1$; $5 \le x < 10 : 3$; $10 \le x < 15 : 2$; $15 \le x < 20 : 2$.

2. Total frequency $= 1 + 3 + 2 + 2 = 8$. Boundary values enter the interval beginning at that value, not the preceding one.

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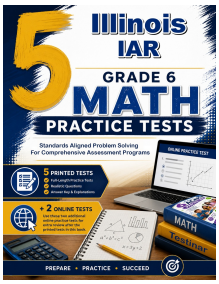

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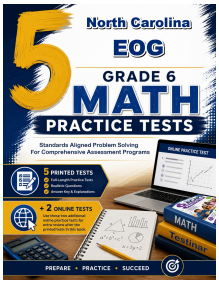

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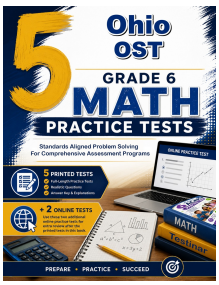

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