Measurement Data and Line Plots

Apply the skill to decisions and designs

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

QUICK REVIEW

A line plot puts one X above the measured length for each object. From one whole-inch tick to the next, count 4 equal steps. Each step is $\frac{1}{4}$ inch. When several objects have the same length, stack their X marks.

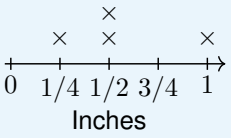
Worked example

Plot these lengths in inches, using one X for each object: $\frac{1}{4}$, $\frac{1}{2}$, $\frac{1}{2}$, 1.

1. Sort the lengths into counts: $\frac{1}{4}$: 1 X; $\frac{1}{2}$: 2 X; 1: 1 X.

2. The counts add to $1 + 2 + 1 = 4$, so plot 4 X marks in all.

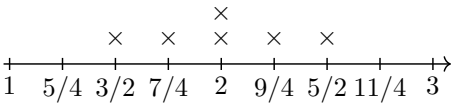
Answer: $\frac{1}{4}$: 1 X; $\frac{1}{2}$: 2 X; 1: 1 X.



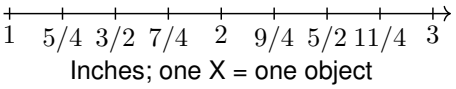
Practice Problems

Show your thinking.

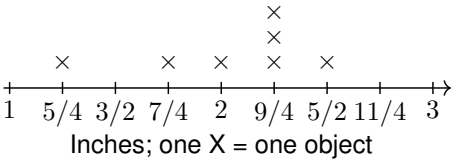
1. A craft needs pieces at least 2 inches long. How many measured pieces can be used?



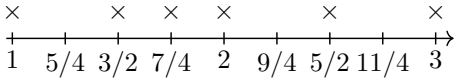
2. Plot these lengths in inches, using one X for each object: 1, $\frac{5}{4}$, 2, 2, 2, $\frac{5}{2}$, 3.



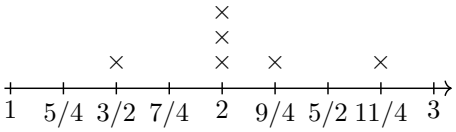
3. A craft needs pieces at least 2 inches long. How many measured pieces can be used?



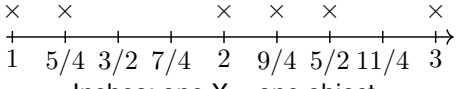
4. How much longer is the longest object than the shortest? Use the quarter-inch intervals.



5. Which length occurs most often? How many objects have that length?



6. A craft needs pieces at least 2 inches long. How many measured pieces can be used?



Answer Key

1. 4 pieces.
2. 1: 1 X; $\frac{5}{4}$: 1 X; 2: 3 X; $\frac{5}{2}$: 1 X; 3: 1 X.
3. 5 pieces.
4. 2 inches.
5. 2 inches; 3 objects.
6. 4 pieces.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Use stacks at 2 inches or farther right; their counts are 2, 1, 1.

2. Add eligible counts: $2 + 1 + 1 = 4$ pieces.

Problem 2

1. Sort the lengths into counts: 1: 1 X; $\frac{5}{4}$: 1 X; 2: 3 X; $\frac{5}{2}$: 1 X; 3: 1 X.

2. The counts add to $1 + 1 + 3 + 1 + 1 = 7$, so plot 7 X marks in all.

Problem 3

1. Use stacks at 2 inches or farther right; their counts are 1, 3, 1.

2. Add eligible counts: $1 + 3 + 1 = 5$ pieces.

Problem 4

1. The smallest and largest plotted lengths are $\frac{4}{4}$ and $\frac{12}{4}$ inches when written in quarters.

2. There are $12 - 4 = 8$ quarter-inch steps between them: $8 \times \frac{1}{4} = 2$ inches.

Problem 5

1. The tallest stack is above 2 and has 3 X marks.

2. Other stacks have 1, 1, 1 marks, all fewer. The tallest stack gives the most frequent length.

Problem 6

1. Use stacks at 2 inches or farther right; their counts are 1, 1, 1, 1.

2. Add eligible counts: $1 + 1 + 1 + 1 = 4$ pieces.

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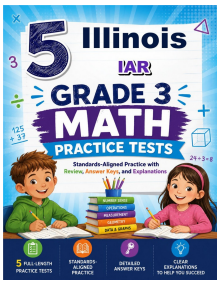

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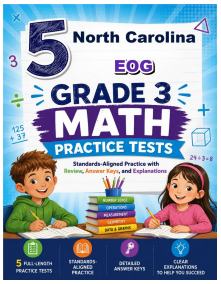

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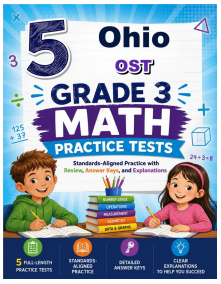

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