Measurement Data and Line Plots

Explore ideas and representations

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.

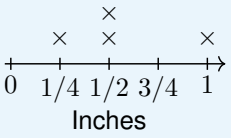
Worked example

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.

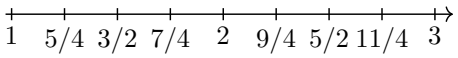
Answer: $\frac{1}{4}$: 1 X; $\frac{1}{2}$: 2 X; 1: 1 X.



Practice Problems

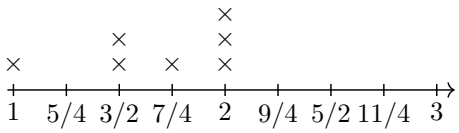
Show your thinking.

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



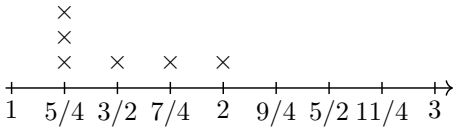
Inches; one X = one object

2. How many objects are $\frac{3}{2}$ inches long? How many objects are plotted altogether?



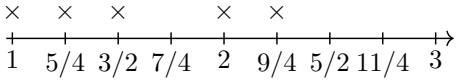
Inches; one X = one object

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



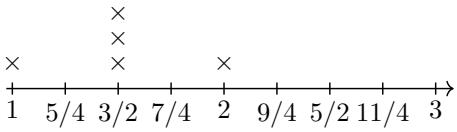
Inches; one X = one object

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



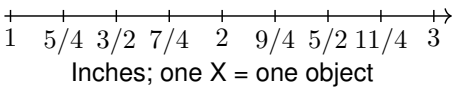
Inches; one X = one object

5. A student counts one stack at $\frac{3}{2}$ inches as one object. Correct the count at that length.



Inches; one X = one object

6. Plot these lengths in inches, using one X for each object: $\frac{3}{2}$, $\frac{7}{4}$, 2, 2, $\frac{9}{4}$, $\frac{5}{2}$.



Inches; one X = one object

Answer Key

1. 1: 1 X; $\frac{5}{4}$: 2 X; $\frac{3}{2}$: 3 X; 2: 1 X.
2. 2 objects at that length; 7 altogether.
3. $\frac{5}{4}$ inches; 3 objects.
4. $\frac{5}{4}$ inches.
5. 3 objects.
6. $\frac{3}{2}$: 1 X; $\frac{7}{4}$: 1 X; 2: 2 X; $\frac{9}{4}$: 1 X; $\frac{5}{2}$: 1 X.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

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

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

Problem 2

1. Count the X marks above $\frac{3}{2}$: 2 marks mean 2 objects.

2. All stacks total $1 + 2 + 1 + 3 = 7$ objects.

Problem 3

1. The tallest stack is above $\frac{5}{4}$ and has 3 X marks.

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

Problem 4

1. The smallest and largest plotted lengths are $\frac{4}{4}$ and $\frac{9}{4}$ inches when written in quarters.

2. There are $9 - 4 = 5$ quarter-inch steps between them: $5 \times \frac{1}{4} = \frac{5}{4}$ inches.

Problem 5

1. The key says one X is one object; the stack has 3 X marks.

2. Each X is separate, so the count is 3, not 1; the length remains $\frac{3}{2}$ inches.

Problem 6

1. Sort the lengths into counts: $\frac{3}{2}$: 1 X; $\frac{7}{4}$: 1 X; 2: 2 X; $\frac{9}{4}$: 1 X; $\frac{5}{2}$: 1 X.

2. The counts add to $1 + 1 + 2 + 1 + 1 = 6$, so plot 6 X marks in all.

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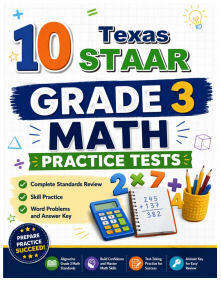

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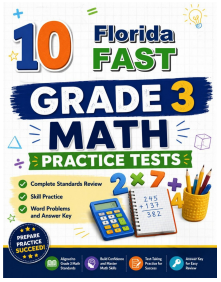

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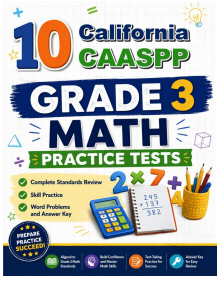

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