LESSON MAKER PRO

X Marks Measurements

Read line plots and add or subtract fractional lengths.

GRADE 4 · 4.MD.B.4

CCSS.Math.Content.4.MD.B.4 "Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example..."

NAME _____ DATE _____

USE THE XS

On a line plot, each X stands for one measurement. Find the value of a group by counting its Xs and adding the matching fractions. To find how far apart two measurements are, subtract the smaller fraction from the larger fraction.

WORKED EXAMPLE

A line plot shows leaf lengths in inches: 1 1/8: XX, 1 1/4: X, 1 3/8: X. What is the difference between the longest and shortest leaf lengths?

1. The longest length is 1 3/8 inch.
2. The shortest length is 1 1/8 inch.
3. Subtract: 1 3/8 - 1 1/8 = 2/8.
4. Simplify 2/8 to 1/4.

Answer: 1/4 inch

PRACTICE 6 problems

1 Make a line plot for these ribbon lengths in inches: 3/8, 5/8, 3/8, 7/8, 5/8, 3/8. Use tick marks from 3/8 through 7/8 by eighths.

ANSWER _____

2 This line plot shows the lengths of toy cars in feet. 1/4: XX 1/2: X 3/4: XXX How many toy cars are 3/4 foot long?

ANSWER _____

3 This line plot shows paper-strip lengths in inches. 1/8: XX 2/8: X 3/8: XX What is the combined length of the two strips that are 3/8 inch long?

ANSWER _____

4 This line plot shows the lengths of three fish drawings in inches. 2 1/4: X 2 1/2: XX 2 7/8: X What is the difference between the longest and shortest drawings?

ANSWER _____

5 This line plot shows jump distances in feet. 3 1/2: XX 3 3/4: X 4: X What is the combined distance of one shortest jump and one longest jump?

ANSWER _____

6 This line plot shows the heights of four towers in inches. 4 1/8: X 4 3/8: XX 4 5/8: X What is the total height of all four towers?

ANSWER _____

APPLY IT Show your work

1 A line plot shows the distances of soccer kicks in yards. 6 1/4: XX 6 1/2: X 6 3/4: XX What is the difference between the total distance of the two longest kicks and the total distance of the two shortest kicks?

WORK SPACE

ANSWER _____

2 A line plot shows jump heights in feet at a skate park. 2 1/8: X 2 1/4: XX 2 1/2: X 2 5/8: X Lena adds the heights of two jumps that are 2 1/4 feet high and one jump that is 2 5/8 feet high. What is the total?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Make a line plot for these robot-path lengths in miles: 3 1/8, 3 1/4, 3 1/4, 3 5/8, 3 7/8. Then find the difference between the total of the two greatest lengths and the total of the two smallest lengths.

_____

_____

ANSWER KEY

X Marks Measurements

GRADE 4 · 4.MD.B.4

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Make a line plot for these ribbon lengths in inches: 3/8, 5/8, 3/8, 7/8, 5/8, 3/8. Use tick marks from 3/8 through 7/8 by eighths.	**3/8: XXX; 4/8: 0; 5/8: XX; 6/8: 0; 7/8: X**
2	This line plot shows the lengths of toy cars in feet. 1/4: XX 1/2: X 3/4: XXX How many toy cars are 3/4 foot long?	**3 toy cars**
3	This line plot shows paper-strip lengths in inches. 1/8: XX 2/8: X 3/8: XX What is the combined length of the two strips that are 3/8 inch long?	**3/4 inch**
4	This line plot shows the lengths of three fish drawings in inches. 2 1/4: X 2 1/2: XX 2 7/8: X What is the difference between the longest and shortest drawings?	**5/8 inch**
5	This line plot shows jump distances in feet. 3 1/2: XX 3 3/4: X 4: X What is the combined distance of one shortest jump and one longest jump?	**7 1/2 feet**
6	This line plot shows the heights of four towers in inches. 4 1/8: X 4 3/8: XX 4 5/8: X What is the total height of all four towers?	**17 1/2 inches**

PART 2 · APPLY IT

1. **1 yard** The two longest kicks total 6 3/4 + 6 3/4 = 13 1/2 yards. The two shortest kicks total 6 1/4 + 6 1/4 = 12 1/2 yards, so the difference is 1 yard.
2. **7 1/8 feet** Add the two matching jumps first: 2 1/4 + 2 1/4 = 4 1/2. Then add 4 1/2 + 2 5/8 = 7 1/8 feet.

CHALLENGE

Line plot: 3 1/8: X; 3 1/4: XX; 3 3/8: 0; 3 1/2: 0; 3 5/8: X; 3 3/4: 0; 3 7/8: X. Difference: (3 7/8 + 3 5/8) - (3 1/8 + 3 1/4) = 1 1/8 miles.

Accept equivalent fraction forms, such as 6/8 for 3/4 and 4/8 for 1/2. For student-made line plots, check that each measurement has the correct number of Xs and that the scale uses equal eighth-inch intervals.