

Data Trackers

Make line plots and solve problems with fractional measurements.

GRADE 4 • 4.MD.B

CCSS.Math.Content.4.MD.B "Represent and interpret data."

NAME _____

DATE _____

Read Measurement Data

A line plot places one X above the value of each measurement. Stack matching measurements. Equally spaced ticks have equal-sized steps. Add lengths to find a total; subtract lengths to compare them.

Worked example

The plot shows three craft sticks. Find their total length.

Craft-stick lengths (Feet)



1. One stick is $1 \frac{1}{8}$ feet and two are $1 \frac{3}{8}$ feet.
2. Add whole numbers: $1 + 1 + 1 = 3$.
3. Add eighths: $\frac{1}{8} + \frac{3}{8} + \frac{3}{8} = \frac{7}{8}$.

The total is $3 \frac{7}{8}$ feet.

For a blank plot, place one X for every listed measurement. Stack X marks at equal heights. Use the plot to answer; show fraction calculations on the lines.

Practice 1

Plot these jump lengths. Which length occurs most often?

Measurements: $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{2}$ Yards

Ari's jumps (Yards)

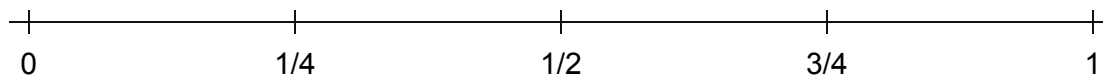


Practice 2

Plot the button widths. Find the total width of only the $\frac{1}{2}$ -inch buttons.

Measurements: $\frac{1}{4}$, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{2}$ Inches

Button widths (Inches)

**Practice 3**

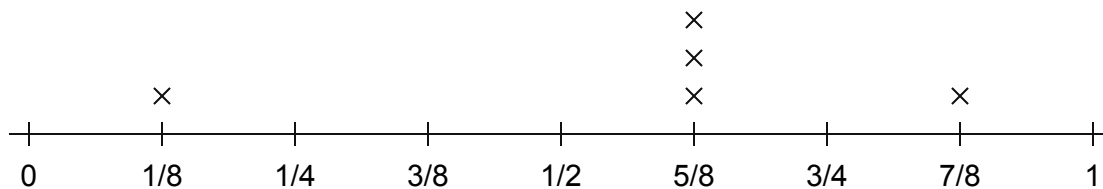
This plot shows two of three shells. All three lengths total $1\frac{1}{2}$ inches. Find the missing length and add its X to the plot.

Shell lengths (Inches)

**Practice 4**

Read the line plot of leaf lengths. How many leaves are $\frac{5}{8}$ inch long?

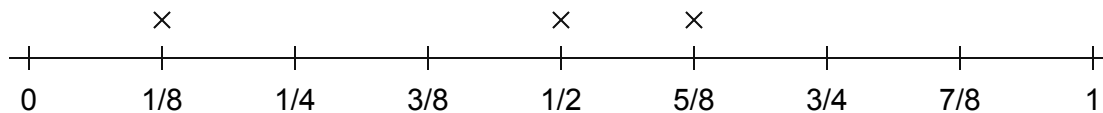
Leaf lengths (Inches)



Practice 5

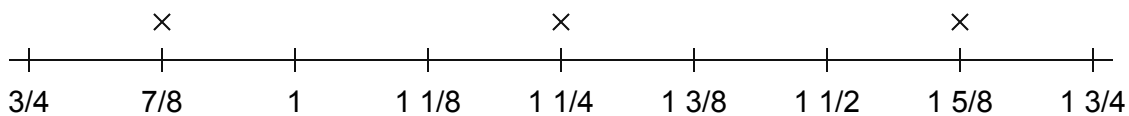
Read the yarn plot. Find the total length of all three pieces.

Yarn lengths (Yards)

**Practice 6**

Use the bean-pod plot. How much longer is the longest pod than the shortest?

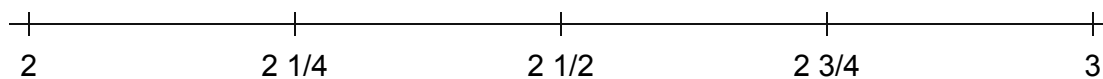
Bean-pod lengths (Inches)

**Apply It 1**

Plot the four toy-car distances. How many runs traveled $2\frac{1}{4}$ meters? How much farther was the longest than the shortest?

Measurements: $2\frac{1}{4}$, $2\frac{3}{4}$, $2\frac{1}{4}$, $2\frac{1}{2}$ Meters

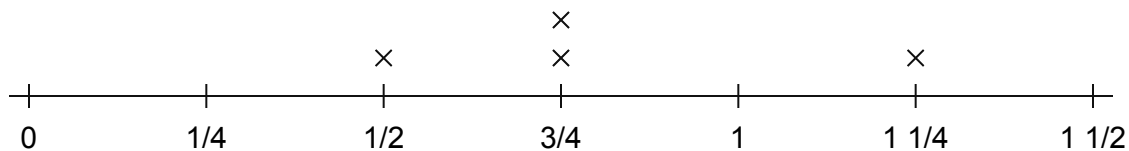
Toy-car distances (Meters)



Apply It 2

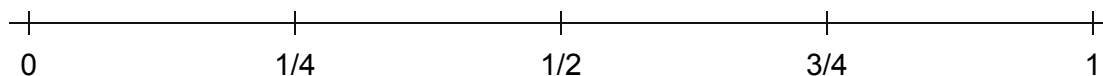
Read the flight-time plot. Find the total for the two $\frac{3}{4}$ -minute flights. How much longer was the $1\frac{1}{4}$ -minute flight than the $\frac{1}{2}$ -minute flight?

Drone flight times (Minutes)

**Challenge**

Seven paper-strip lengths are $\frac{1}{4}$, $\frac{1}{4}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{3}{4}$ and $\frac{3}{4}$ foot. Plot them. An eighth strip makes the total $4\frac{1}{4}$ feet. Find that missing length and add its X. Show the seven-length sum and the subtraction for the missing length.

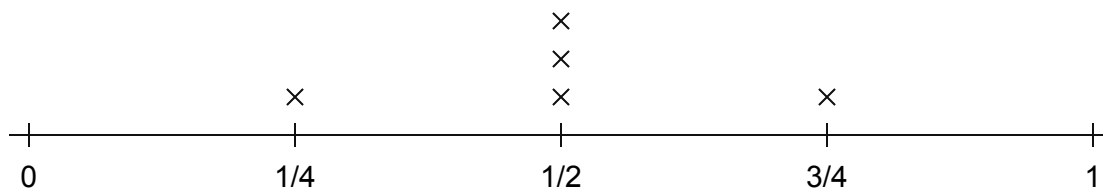
Paper-strip lengths (Feet)



PRACTICE 1

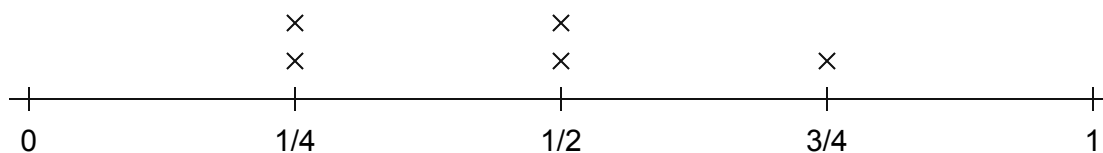
X counts: $1/4$: 1; $1/2$: 3; $3/4$: 1. Most frequent: $1/2$ yard.

Ari's jumps (Yards)

**PRACTICE 2**

X counts: $1/4$: 2; $1/2$: 2; $3/4$: 1. Their total is $1/2 + 1/2 = 1$ inch.

Button widths (Inches)

**PRACTICE 3**

The missing shell is $3/4$ inch. $1\ 1/2 - (1/8 + 5/8) = 12/8 - 6/8 = 6/8$.

PRACTICE 4

3 leaves.

PRACTICE 5

$1/8 + 4/8 + 5/8 = 10/8 = 1\ 1/4$ yards.

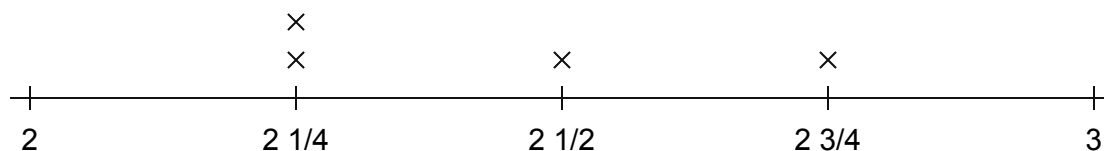
PRACTICE 6

$1\ 5/8 - 7/8 = 13/8 - 7/8 = 6/8 = 3/4$ inch.

APPLY IT 1

X counts: $2\frac{1}{4}$: 2; $2\frac{1}{2}$: 1; $2\frac{3}{4}$: 1. Two runs; difference $\frac{1}{2}$ meter. Subtract $2\frac{1}{4}$ from $2\frac{3}{4}$.

Toy-car distances (Meters)



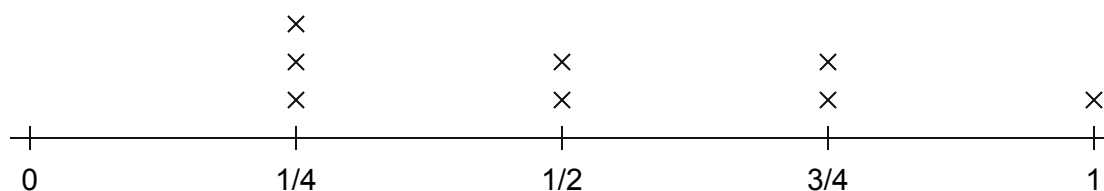
APPLY IT 2

$1\frac{1}{2}$ minutes; $\frac{3}{4}$ minute. $\frac{3}{4} + \frac{3}{4} = \frac{6}{4}$. Also $\frac{5}{4} - \frac{2}{4} = \frac{3}{4}$.

CHALLENGE

The eighth strip is 1 foot. Final X counts: $\frac{1}{4}$: 3; $\frac{1}{2}$: 2; $\frac{3}{4}$: 2; 1: 1. The seven given lengths total $3\frac{1}{4}$ feet; $4\frac{1}{4} - 3\frac{1}{4} = 1$ foot.

Paper-strip lengths (Feet)



TEACHER NOTES

Each X is one measurement; require correct fractional positions and stacked counts, not connected points or bars. Equivalent exact fractions are acceptable. Practice 3: keep the X marks at $\frac{1}{8}$ and $\frac{5}{8}$ and add one at $\frac{3}{4}$. Challenge: add only one new observation to the seven givens. These are simulated classroom measurements.