

Fraction Dot Detectives

Use line-plot data to add, subtract, and compare fractional measurements.

GRADE 5 • 5.MD.B

CCSS.Math.Content.5.MD.B "Represent and interpret data."

NAME _____

DATE _____

READ THE DOTS

On a line plot, each dot stands for one data value. To find the total for a group of matching dots, multiply the measurement by the number of dots, then add or subtract group totals as the question asks.

WORKED EXAMPLE

A line plot has 4 dots above $\frac{3}{8}$ liter. How many liters do those dots represent?

1. $4 \times \frac{3}{8} = \frac{12}{8}$

2. $\frac{12}{8} = 1 \frac{4}{8}$

3. $1 \frac{4}{8} = 1 \frac{1}{2}$

Answer: 1 $\frac{1}{2}$ liters

PRACTICE 6 problems

- 1** A line plot has 5 dots above $\frac{1}{8}$ pound.
What total weight do those dots represent?

ANSWER _____

- 2** A line plot has 3 dots above $\frac{1}{4}$ meter.
What total length do those dots represent?

ANSWER _____

- 3** A line plot has 6 dots above $\frac{1}{2}$ inch. What
total length do those dots represent?

ANSWER _____

- 4** A line plot has 2 dots above $\frac{1}{4}$ mile and 5
dots above $\frac{3}{4}$ mile. What total distance do
all the dots represent?

ANSWER _____

- 5** A line plot has 6 dots above $\frac{5}{8}$ inch. What
total length do those dots represent?

ANSWER _____

- 6** A line plot has 3 dots above $\frac{1}{2}$ inch and 2
dots above $\frac{7}{8}$ inch. How much more
length is represented by the $\frac{7}{8}$ -inch
group?

ANSWER _____

APPLY IT Show your work

- 1** At the costume club, a line plot of ribbon pieces has 5 dots at $\frac{1}{4}$ yard and 3 dots at $\frac{3}{4}$ yard. How many yards of ribbon are represented altogether?

WORK SPACE

ANSWER _____

- 2** The school running club makes a line plot of distances run during a warm-up. It has 4 dots at $\frac{5}{8}$ mile and 6 dots at $\frac{7}{8}$ mile. How many more miles were run by the $\frac{7}{8}$ -mile group than by the $\frac{5}{8}$ -mile group?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A line plot of comic-book reading times has 2 dots at $\frac{1}{4}$ hour, x dots at $\frac{1}{2}$ hour, and 3 dots at $\frac{3}{4}$ hour. The total time represented is $5\frac{1}{4}$ hours. What is x ? Explain how you know.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A line plot has 5 dots above $\frac{1}{8}$ pound. What total weight do those dots represent?	$\frac{5}{8}$ pound
2	A line plot has 3 dots above $\frac{1}{4}$ meter. What total length do those dots represent?	$\frac{3}{4}$ meter
3	A line plot has 6 dots above $\frac{1}{2}$ inch. What total length do those dots represent?	3 inches
4	A line plot has 2 dots above $\frac{1}{4}$ mile and 5 dots above $\frac{3}{4}$ mile. What total distance do all the dots represent?	$4 \frac{1}{4}$ miles
5	A line plot has 6 dots above $\frac{5}{8}$ inch. What total length do those dots represent?	$3 \frac{3}{4}$ inches
6	A line plot has 3 dots above $\frac{1}{2}$ inch and 2 dots above $\frac{7}{8}$ inch. How much more length is represented by the $\frac{7}{8}$ -inch group?	$\frac{1}{4}$ inch

PART 2 • APPLY IT

- $3 \frac{1}{2}$ yards** Multiply each ribbon length by its number of dots: $5 \times \frac{1}{4} = \frac{5}{4}$ and $3 \times \frac{3}{4} = \frac{9}{4}$. Add $\frac{5}{4} + \frac{9}{4} = \frac{14}{4} = 3 \frac{1}{2}$.
- $2 \frac{3}{4}$ miles** The $\frac{7}{8}$ -mile group ran $6 \times \frac{7}{8} = \frac{42}{8}$ miles, and the $\frac{5}{8}$ -mile group ran $4 \times \frac{5}{8} = \frac{20}{8}$ miles. Subtract: $\frac{42}{8} - \frac{20}{8} = \frac{22}{8} = 2 \frac{3}{4}$.

CHALLENGE

$x = 5$. The known dots represent $2 \frac{3}{4}$ hours, leaving $2 \frac{1}{2}$ hours. Five groups of $\frac{1}{2}$ hour make $2 \frac{1}{2}$ hours.

Accept equivalent fraction forms before simplification. For the challenge, accept $x = 5$ with a correct explanation that accounts for the known total and the remaining half-hour groups.