Line Plots with Fractions

Spot mistakes, reason, and work backward

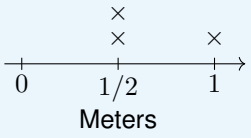
Name _____ **Date** _____ **Score** _____ / 6

QUICK REVIEW

A line plot puts one X above each measurement. Stack marks at lengths that repeat. To add lengths, count every mark and use equal-sized units. On a fourths plot, each small step is $\frac{1}{4}$ m.

Worked example

Find the total length of the pieces shown.



1. Read every mark as a length, in equal steps of $\frac{1}{2}$ m.

2. $1 + 1 + 2 = 4$ steps in all.

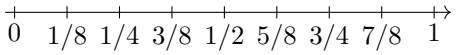
3. The total length is $\frac{4}{2} = 2$ m.

Answer: 2 m.

Practice Problems

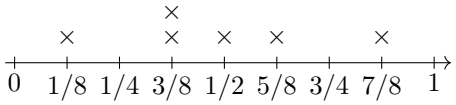
Show your thinking.

1. Plot these cord lengths using eighth-meter ticks. Measurements (m): $\frac{1}{8}$, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$.



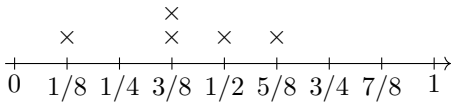
Meters; one X = one item

2. A child counts ticks instead of crosses. Find the actual number of cords.



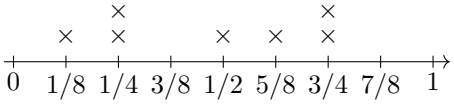
Meters; one X = one item

3. The five shown cords plus one missing cord total $2\frac{5}{8}$ m. Find the missing length.



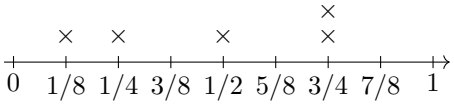
Meters; one X = one item

4. The true lengths are $\frac{1}{8}, \frac{1}{4}, \frac{1}{4}, \frac{1}{2}, \frac{5}{8}, \frac{3}{4}$ m. Find and remove the extra cross in this plot.



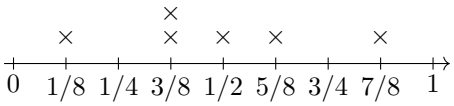
Meters; one X = one item

5. Can removing exactly one of these cords leave 2 m? Use the plot to justify your answer.



Meters; one X = one item

6. Compare the plotted group with four $\frac{3}{4}$-m cords. Which group has more total length, and by how much?



Meters; one X = one item

Answer Key

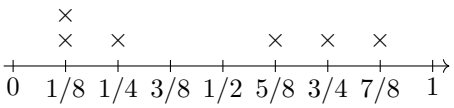
1. Stacks (length in m): $\frac{1}{8}$: 2, $\frac{1}{4}$: 1, $\frac{5}{8}$: 1, $\frac{3}{4}$: 1, $\frac{7}{8}$: 1.
2. 6 items.
3. $\frac{5}{8}$ m.
4. Remove one X at $\frac{3}{4}$ m.
5. No; the required $\frac{3}{8}$-m cord is absent.
6. The four cords have $\frac{1}{8}$ m more.

Step-by-Step Solutions

Follow each calculation, then check your own work.

Problem 1

1. Tally repeats: $\frac{1}{8}$ has 2, $\frac{1}{4}$ has 1, $\frac{5}{8}$ has 1, $\frac{3}{4}$ has 1, $\frac{7}{8}$ has 1.
2. Place one X for every measurement above its tick.
3. $2+1+1+1+1=6$ marks in the completed plot.



Meters; one X = one item

Problem 2

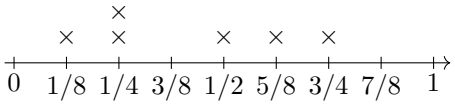
1. Count the X marks in each occupied stack, from left to right.
2. $1+2+1+1+1=6$ marks.
3. Each mark represents one item, so there are 6 items.

Problem 3

1. The plotted lengths sum to $\frac{1}{8}+\frac{3}{8}+\frac{3}{8}+\frac{4}{8}+\frac{5}{8}=\frac{16}{8}$ m.
2. The target is $2\frac{5}{8}=\frac{21}{8}$ m.
3. $\frac{21}{8}-\frac{16}{8}=\frac{5}{8}$ m is missing.

Problem 4

1. The list has one $\frac{3}{4}$-m cord.
2. The plot shows two marks there; the other counts match.
3. Remove $2-1=1$ mark at that tick.



Meters; one X = one item

Problem 5

1. The plotted lengths add to $\frac{1}{8}+\frac{2}{8}+\frac{4}{8}+\frac{6}{8}+\frac{6}{8}=\frac{19}{8}$ m.
2. Leaving $2=\frac{16}{8}$ m would require removing $\frac{19}{8}-\frac{16}{8}=\frac{3}{8}$ m.
3. The $\frac{3}{8}$-m tick has no cross, so no single cord works.

Problem 6

1. The plotted eighths add to $1+3+3+4+5+7=23$, so the total is $\frac{23}{8}$ m.
2. The four other cords total $4\times\frac{3}{4}=3=\frac{24}{8}$ m.
3. $\frac{24}{8}-\frac{23}{8}=\frac{1}{8}$ m more.

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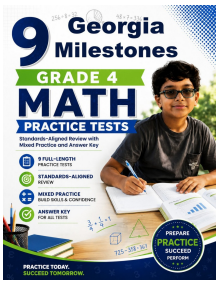

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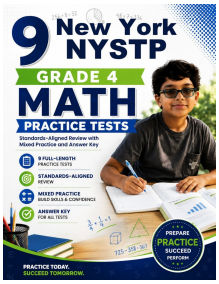

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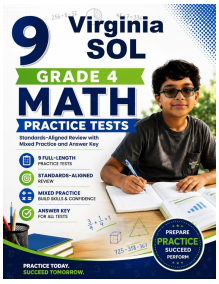

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