

# Line Plots with Fractions

Name: \_\_\_\_\_

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## Q Quick Review

A **line plot** shows a set of measurements by stacking a mark (usually an X) above a number line for each value. When the measurements are **fractions**, the number line is labeled with fractions like  $\frac{1}{4}$ ,  $\frac{1}{2}$ , and  $\frac{3}{4}$ . To read a line plot, **count the X's** above each value. The value with the **most X's** appears most often. To find a **total**, add up every measurement; to find a **difference**, subtract the smallest from the largest. When you add fractions with the same bottom number, just add the top numbers and keep the denominator the same.

◊ **Example:** On a line plot, the lengths of 5 pencils were measured:  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{3}{4}$ ,  $\frac{1}{2}$  inch. What length appears most often, and what is the total length of all the pencils?

⇒ First, count how often each length shows up. The value  $\frac{1}{4}$  appears twice,  $\frac{1}{2}$  appears twice, and  $\frac{3}{4}$  appears once — so  $\frac{1}{4}$  and  $\frac{1}{2}$  tie for most often. For the total, add them all using quarters:  $\frac{1}{4} + \frac{2}{4} + \frac{1}{4} + \frac{3}{4} + \frac{2}{4} = \frac{9}{4}$  inch, which is the same as  $2\frac{1}{4}$  inches.

**Answer:**  $\frac{1}{4}$  and  $\frac{1}{2}$  tie; total  $\frac{9}{4}$  in

## PRACTICE

Use each data set to answer the question.

- Data:  $\frac{1}{4}$ ,  $\frac{1}{4}$ ,  $\frac{1}{2}$ . How many values? \_\_\_\_\_
- Data:  $\frac{1}{2}$ ,  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{2}$ . Which value appears most? \_\_\_\_\_
- Data:  $\frac{1}{4}$ ,  $\frac{3}{4}$ ,  $\frac{1}{4}$ ,  $\frac{1}{4}$ . How many times does  $\frac{1}{4}$  appear? \_\_\_\_\_
- Data:  $\frac{1}{4}$ ,  $\frac{1}{4}$ . Total length? \_\_\_\_\_
- Data:  $\frac{1}{2}$ ,  $\frac{1}{2}$ . Total length? \_\_\_\_\_
- Data:  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{1}{4}$ . Total length? \_\_\_\_\_
- Data:  $\frac{3}{4}$ ,  $\frac{1}{4}$ . Total length? \_\_\_\_\_
- Data:  $\frac{1}{4}$ ,  $\frac{3}{4}$ . Difference between largest and smallest? \_\_\_\_\_
- Data:  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{3}{4}$ . Difference between largest and smallest? \_\_\_\_\_
- Data:  $\frac{1}{4}$ ,  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ . Total length? \_\_\_\_\_
- Data:  $\frac{1}{8}$ ,  $\frac{1}{8}$ ,  $\frac{3}{8}$ . Which value appears most? \_\_\_\_\_
- Data:  $\frac{1}{8}$ ,  $\frac{3}{8}$ . Total length? \_\_\_\_\_
- Data:  $\frac{1}{8}$ ,  $\frac{1}{8}$ ,  $\frac{1}{8}$ . Total length? \_\_\_\_\_
- Data:  $\frac{3}{8}$ ,  $\frac{1}{8}$ . Difference between largest and smallest? \_\_\_\_\_
- Data:  $\frac{1}{2}$ ,  $\frac{1}{2}$ ,  $\frac{1}{2}$ ,  $\frac{1}{2}$ . Total length? \_\_\_\_\_
- Data:  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ ,  $\frac{1}{2}$ . Which value appears most? \_\_\_\_\_
- Data:  $\frac{1}{4}$ ,  $\frac{1}{4}$ ,  $\frac{3}{4}$ ,  $\frac{3}{4}$ . Total length? \_\_\_\_\_
- Data:  $\frac{2}{4}$ ,  $\frac{1}{4}$ ,  $\frac{2}{4}$ . Total length? \_\_\_\_\_
- Data:  $\frac{1}{8}$ ,  $\frac{2}{8}$ ,  $\frac{1}{8}$ ,  $\frac{3}{8}$ . Total length? \_\_\_\_\_
- Data:  $\frac{1}{4}$ ,  $\frac{3}{4}$ ,  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{1}{4}$ . Which value appears most? \_\_\_\_\_

## ◆ Word Problems

- For science class, students measured the lengths of 5 leaves. The lengths were  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{3}{4}$ , and  $\frac{1}{2}$  inch. What total length do all 5 leaves add up to? \_\_\_\_\_
- A line plot shows the lengths of ribbons:  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$ ,  $\frac{3}{8}$ ,  $\frac{1}{4}$ , and  $\frac{1}{8}$  inch. Which length appears most often? \_\_\_\_\_
- On a line plot of bug lengths, the longest bug measured  $\frac{3}{4}$  inch and the shortest measured  $\frac{1}{4}$  inch. How much longer is the longest bug than the shortest? \_\_\_\_\_
- Ben measured 4 crayons for a line plot:  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{2}$ , and  $\frac{3}{4}$  inch. What is the combined length of all 4 crayons? \_\_\_\_\_



## Answer Keys

1.  $\frac{3}{4}$
2.  $\frac{1}{2}$
3.  $\frac{3}{4}$
4.  $\frac{1}{2}$
5.  $\frac{1}{2}$
6.  $\frac{1}{4}$
7.  $\frac{1}{4}$
8.  $\frac{1}{2}$
9.  $\frac{1}{2}$
10.  $\frac{7}{4}$
11.  $\frac{1}{8}$
12.  $\frac{1}{2}$

13.  $\frac{3}{8}$
14.  $\frac{1}{4}$
15.  $\frac{2}{4}$
16.  $\frac{1}{2}$
17.  $\frac{2}{4}$
18.  $\frac{5}{4}$
19.  $\frac{7}{8}$
20.  $\frac{1}{4}$
21.  $\frac{9}{4}$  inch
22.  $\frac{1}{8}$  inch
23.  $\frac{1}{2}$  inch
24. 2 inches

### Step-by-Step Explanations

1. Just count the measurements listed: there are 3 values.
2. Count each:  $\frac{1}{2}$  shows up 3 times, more than any other.
3. Count the  $\frac{1}{4}$  marks: there are 3 of them.
4. Add:  $\frac{1}{4} + \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$ .
5. Add:  $\frac{1}{2} + \frac{1}{2} = \frac{2}{2} = 1$ .
6. Use quarters:  $\frac{1}{4} + \frac{2}{4} + \frac{1}{4} = \frac{4}{4} = 1$ .
7. Add:  $\frac{3}{4} + \frac{1}{4} = \frac{4}{4} = 1$ .
8. Subtract:  $\frac{3}{4} - \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$ .
9. Largest is  $\frac{3}{4}$ , smallest is  $\frac{1}{4}$ :  $\frac{3}{4} - \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$ .
10. Use quarters:  $\frac{1}{4} + \frac{1}{4} + \frac{2}{4} + \frac{3}{4} = \frac{7}{4}$ .
11.  $\frac{1}{8}$  appears twice, more than  $\frac{3}{8}$ .
12. Add:  $\frac{1}{8} + \frac{3}{8} = \frac{4}{8} = \frac{1}{2}$ .
13. Add:  $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \frac{3}{8}$ .

14. Subtract:  $\frac{3}{8} - \frac{1}{8} = \frac{2}{8} = \frac{1}{4}$ .
15. Four halves make  $\frac{4}{2} = 2$ .
16.  $\frac{1}{2}$  appears twice; the others appear once each.
17. Use quarters:  $\frac{1}{4} + \frac{1}{4} + \frac{3}{4} + \frac{3}{4} = \frac{8}{4} = 2$ .
18. Add:  $\frac{2}{4} + \frac{1}{4} + \frac{2}{4} = \frac{5}{4}$ .
19. Add the eighths:  $\frac{1}{8} + \frac{2}{8} + \frac{1}{8} + \frac{3}{8} = \frac{7}{8}$ .
20. Count each value:  $\frac{1}{4}$  appears 3 times, while  $\frac{3}{4}$  and  $\frac{1}{2}$  each appear once. So  $\frac{1}{4}$  appears most often.
21. Write each as quarters and add:  $\frac{1}{4} + \frac{2}{4} + \frac{1}{4} + \frac{3}{4} + \frac{2}{4} = \frac{9}{4}$  inch, the same as  $2\frac{1}{4}$  inches.
22. Count each value:  $\frac{1}{8}$  appears 3 times,  $\frac{1}{4}$  appears 2 times, and  $\frac{3}{8}$  appears once. So  $\frac{1}{8}$  inch appears most often.
23. Subtract the smallest from the largest:  $\frac{3}{4} - \frac{1}{4} = \frac{2}{4} = \frac{1}{2}$  inch.
24. Use quarters and add:  $\frac{2}{4} + \frac{1}{4} + \frac{2}{4} + \frac{3}{4} = \frac{8}{4} = 2$  inches.



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