

Line Plots with Fractions

Name: _____ Date: _____ Score: _____ / 24

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.

- | | |
|---|---|
| 1. Data: $\frac{1}{4}, \frac{1}{4}, \frac{1}{2}$. How many values? _____ | 11. Data: $\frac{1}{8}, \frac{1}{8}, \frac{3}{8}$. Which value appears most? _____ |
| 2. Data: $\frac{1}{2}, \frac{1}{2}, \frac{1}{4}, \frac{1}{2}$. Which value appears most? _____ | 12. Data: $\frac{1}{8}, \frac{3}{8}$. Total length? _____ |
| 3. Data: $\frac{1}{4}, \frac{3}{4}, \frac{1}{4}, \frac{1}{4}$. How many times does $\frac{1}{4}$ appear? _____ | 13. Data: $\frac{1}{8}, \frac{1}{8}, \frac{1}{8}$. Total length? _____ |
| 4. Data: $\frac{1}{4}, \frac{1}{4}$. Total length? _____ | 14. Data: $\frac{3}{8}, \frac{1}{8}$. Difference between largest and smallest? _____ |
| 5. Data: $\frac{1}{2}, \frac{1}{2}$. Total length? _____ | 15. Data: $\frac{1}{2}, \frac{1}{2}, \frac{1}{2}, \frac{1}{2}$. Total length? _____ |
| 6. Data: $\frac{1}{4}, \frac{1}{2}, \frac{1}{4}$. Total length? _____ | 16. Data: $\frac{1}{4}, \frac{1}{2}, \frac{3}{4}, \frac{1}{2}$. Which value appears most? _____ |
| 7. Data: $\frac{3}{4}, \frac{1}{4}$. Total length? _____ | 17. Data: $\frac{1}{4}, \frac{1}{4}, \frac{3}{4}, \frac{3}{4}$. Total length? _____ |
| 8. Data: $\frac{1}{4}, \frac{3}{4}$. Difference between largest and smallest? _____ | 18. Data: $\frac{2}{4}, \frac{1}{4}, \frac{2}{4}$. Total length? _____ |
| 9. Data: $\frac{1}{2}, \frac{1}{4}, \frac{3}{4}$. Difference between largest and smallest? _____ | 19. Data: $\frac{1}{8}, \frac{2}{8}, \frac{1}{8}, \frac{3}{8}$. Total length? _____ |
| 10. Data: $\frac{1}{4}, \frac{1}{4}, \frac{1}{2}, \frac{3}{4}$. Total length? _____ | 20. Data: $\frac{1}{4}, \frac{3}{4}, \frac{1}{4}, \frac{1}{2}, \frac{1}{4}$. Which value appears most? _____ |

◆ Word Problems

21. 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? _____
22. 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? _____
23. 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? _____
24. 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. $\frac{1}{2}$
7. $\frac{1}{2}$
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

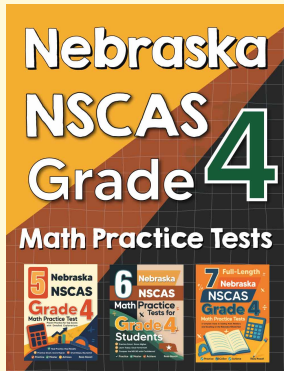
Step-by-Step Explanations

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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