

MATH NEWS

Grade 5, Module 4, Topic A

5th Grade Math

Module 4: Multiplication and Division of Fractions and Decimal Fraction

Math Parent Letter

This document is created to give parents and students a better understanding of the math concepts found in Eureka Math (© 2013 Common Core, Inc.) that is also posted as the Engage New York material which is taught in the classroom. Grade 5 Module 4 of Eureka Math (Engage New York) covers Multiplication and Division of Fractions and Decimal Fractions. This newsletter will address line plots of fraction measurements.

Topic A. Line Plots of Fraction Measurements

Words to know

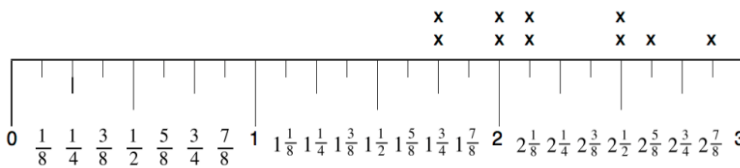
- Line Plot
- Frequency

Things to Remember:

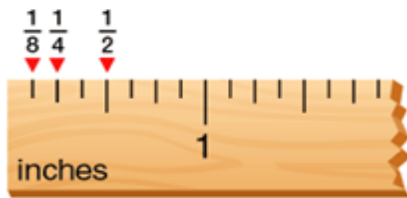
Line Plot- shows data on a number line with an 'x' or other mark to show **frequency**.

Example of a Line Plot

The **line plot** below shows the growth of 10 sunflowers plants. The count of cross marks above each fraction represents the height of each plant after one month of planting.



In this lesson it is important that students be able to read a customary ruler with increments of halves, fourths, and eighths.



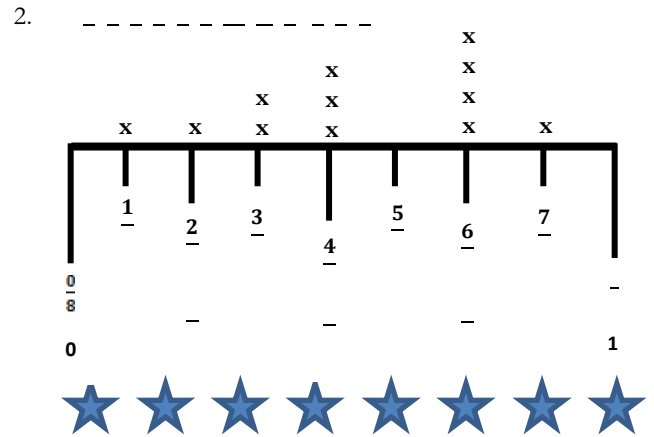
OBJECTIVE OF TOPIC A

Measure and compare pencil lengths to the nearest $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$ of an inch, and analyze the data through line plots.

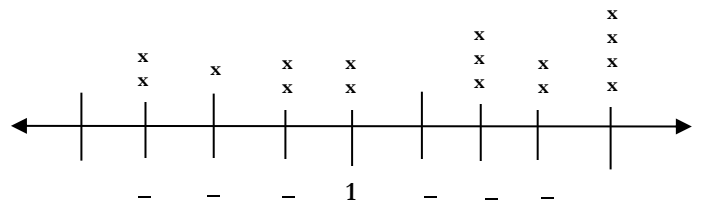
Focus Area– Topic A

Module 4: Line Plots of Fraction Measurements

1. Create a **line plot** for the following data measured in – inches.



Gilbert recorded the lengths of his classmate's erasers. Use the following data to record his results on a **line plot** using $\frac{1}{4}$ inches.



1. How many erasers have a length of at least $1\frac{1}{2}$ inch? **9 erasers**

2. How many erasers measure less than a half inch? **2 erasers**

*3. What is the total length of all the erasers? **20 1/2 inches**

4. What is the difference between the shortest and longest erase lengths? **1 3/4 inches**

5. Which measurement appears most **frequently**? **2 inches**

*6. How many $\frac{1}{4}$ -inch erasers would it take to equal the length of a 2-inch eraser? **8 one-fourth inch erasers**

*Explanation on next page.

Students	Length
Student 1	1/2 inch
Student 2	1 inch
Student 3	2 inches
Student 4	1/4 inch
Student 5	1 1/2 inches
Student 6	1 1/2 inches
Student 7	2 inches
Student 8	2inches
Student 9	1/4 inches
Student 10	3/4 inches
Student 11	3/4 inches
Student 12	2 inches
Student 13	1 3/4 inches
Student 14	1 3/4 inches
Student 15	1 1/2 inches
Student 16	1 inch



Explanation:

3. What is the total length of all the erasers?

$$\begin{array}{cccccccc}
 (2 \times \frac{1}{4}) & + & (1 \times \frac{1}{2}) & + & (2 \times \frac{3}{4}) & + & (2 \times 1) & + & (3 \times 1\frac{1}{2}) & + & (2 \times 1\frac{3}{4}) & + & (4 \times 2) & = \\
 \downarrow & & \downarrow & & \downarrow & & \downarrow & & \downarrow & & \downarrow & & \downarrow & \\
 (\frac{1}{4} + \frac{1}{4}) & + & (\frac{1}{2}) & + & (\frac{3}{4} + \frac{3}{4}) & + & (2 \times 1) & + & (1\frac{1}{2} + 1\frac{1}{2} + 1\frac{1}{2}) & + & (1\frac{3}{4} + 1\frac{3}{4}) & + & (4 \times 2) & = \\
 \downarrow & & \downarrow & & \downarrow & & \downarrow & & \downarrow & & \downarrow & & \downarrow & \\
 \frac{2}{4} = \frac{1}{2} & & \frac{1}{2} & & \frac{6}{4} = 1\frac{1}{2} & & 2 & & 4\frac{1}{2} & & 2\frac{6}{4} = 3\frac{1}{2} & & 8 & \\
 \end{array}$$

Step 1: Add the whole numbers
first. $1 + 2 + 4 + 3 + 8 = 18$

$$\rightarrow \frac{1}{2} + \frac{1}{2} + 1 + \frac{1}{2} + 2 + 4 + \frac{1}{2} + 3 + \frac{1}{2} + 8$$

Step 2: Add the $\frac{1}{2}$
 $(\frac{1}{2} + \frac{1}{2}) + (\frac{1}{2} + \frac{1}{2}) + \frac{1}{2} =$
 $\downarrow \quad \downarrow \quad \downarrow$
 $1 + 1 + \frac{1}{2} = 2\frac{1}{2}$

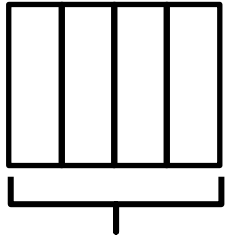
$$\rightarrow = 18 + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$$

$$= 18 + 2\frac{1}{2} = 20 + \frac{1}{2} = 20\frac{1}{2} \text{ inches is the total length of all the erasers}$$

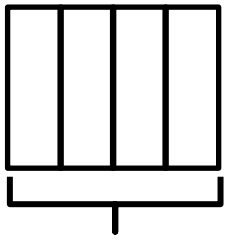


Explanation:

6. How many $\frac{1}{4}$ -inch erasers would it take to equal the length of a 2-inch eraser? To solve this problem you can use different strategies. One strategy is to take two whole rectangles and divide the rectangles into fourths.



$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{4}{4} = 1 \text{ whole inch}$$



$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{4}{4} = 1 \text{ whole inch}$$

$$\frac{4}{4} + \frac{4}{4} = \frac{8}{4} = 2 \text{ inches}$$

It would take 8 one-fourth inch erasers to equal the length of a 2-inch eraser.