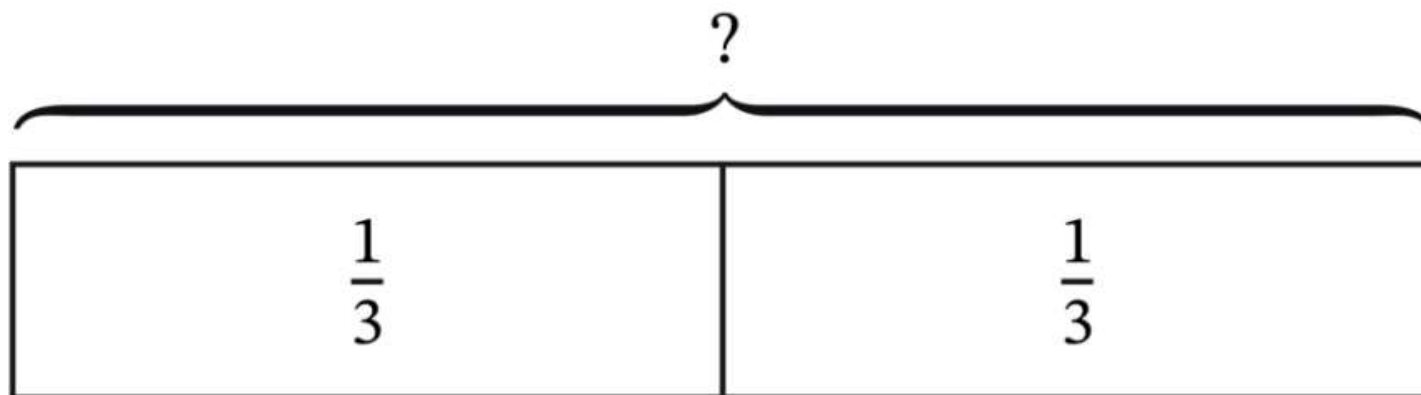# Lesson 17:

Solve problems by equally redistributing a total amount.

CCSS Standard – 5.NF.A.2 / 5.MD.B.2

?

$$\frac{1}{3} \qquad \frac{1}{3}$$

Write a repeated addition equation to represent the tape diagram.

Write a repeated multiplication equation to represent the tape diagram.

Whiteboard Exchange: Relate Repeated Addition to Multiplication
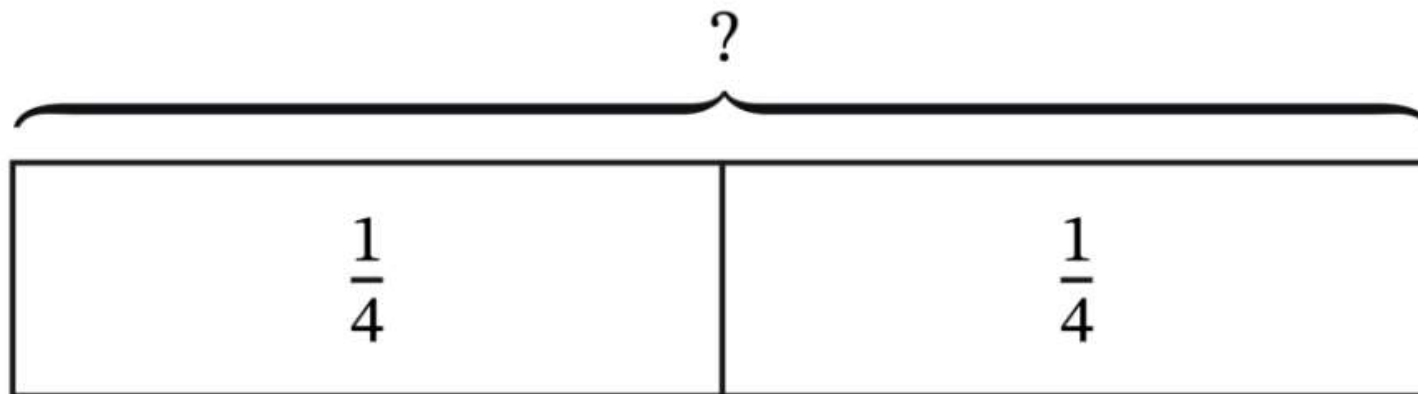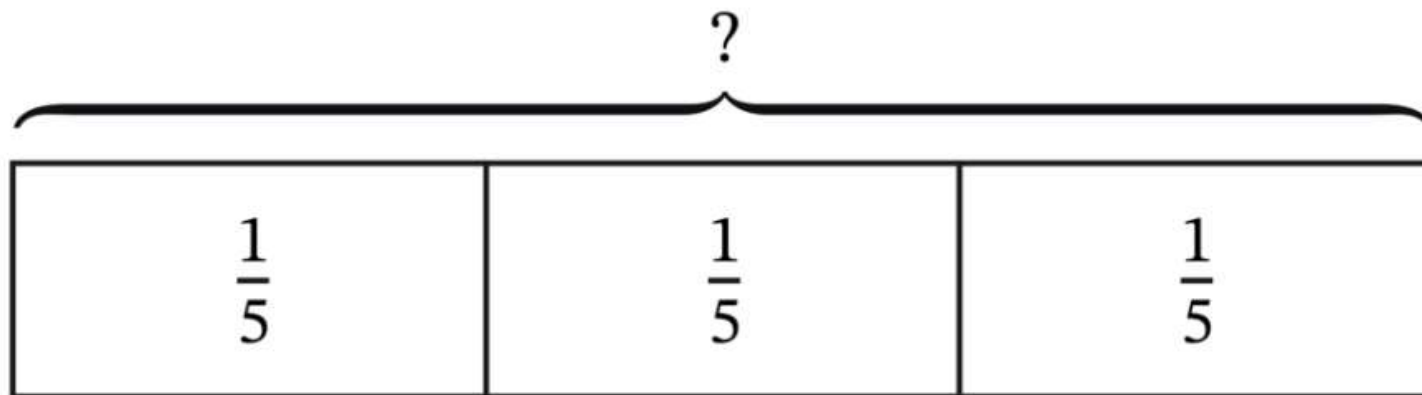
?

| $\dfrac{1}{4}$ | $\dfrac{1}{4}$ |

Write a repeated addition equation to represent the tape diagram.

Write a repeated multiplication equation to represent the tape diagram.

Whiteboard Exchange: Relate Repeated Addition to Multiplication
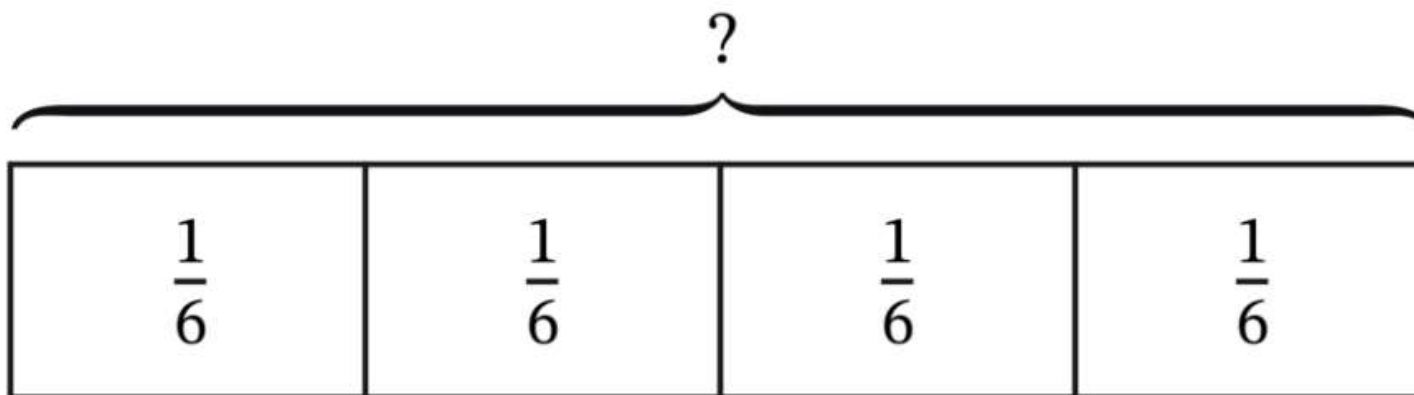
?

| $\frac{1}{5}$ | $\frac{1}{5}$ | $\frac{1}{5}$ |

Write a repeated addition equation to represent the tape diagram.

Write a repeated multiplication equation to represent the tape diagram.

Whiteboard Exchange: Relate Repeated Addition to Multiplication

?

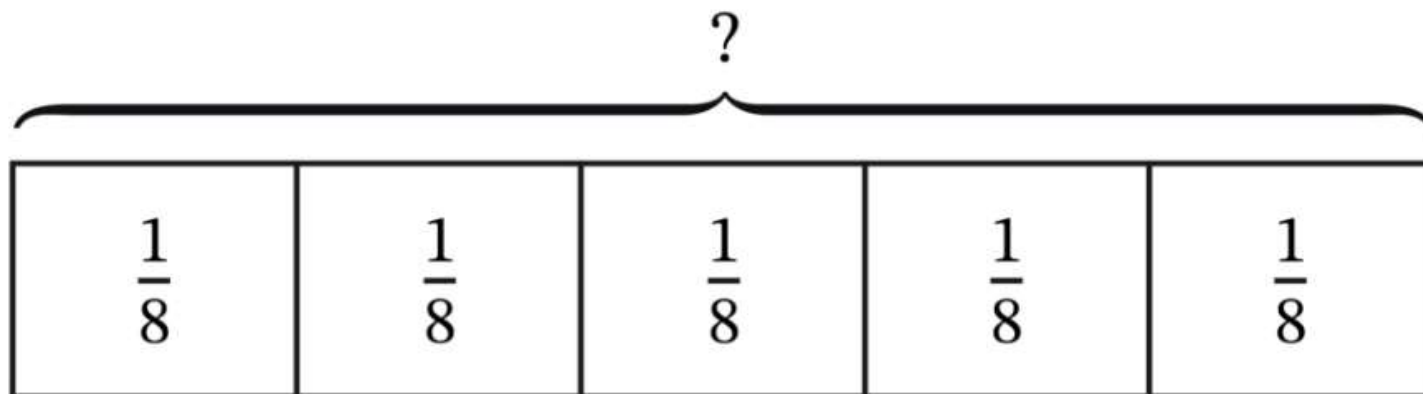| $\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

Write a repeated addition equation to represent the tape diagram.

Write a repeated multiplication equation to represent the tape diagram.

Whiteboard Exchange: Relate Repeated Addition to Multiplication

?

$\dfrac{1}{8}$	$\dfrac{1}{8}$	$\dfrac{1}{8}$	$\dfrac{1}{8}$	$\dfrac{1}{8}$

Write a repeated addition equation to represent the tape diagram.

Write a repeated multiplication equation to represent the tape diagram.

Use the number line to count forward by halves to 1.

Use the number line to count forward by fourths to 1.

Now let's rename fourths as halves, when possible.

Use the number line to count forward by fourths to 1.

Use the number line to count forward by eighths to 1.

Now let's rename eighths as larger units, when possible.

Whiteboard Exchange: Add & Subtract Fractions

Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

$$\frac{1}{2} + \frac{3}{10} =$$

Look at the fractional units.
*Do they have **LIKE units**?*

No! *Are the units **RELATED**?*

Yes! *Which fraction can we RENAME so the fractional units, or denominators, are the same?*

1/2

Whiteboard Exchange: Add & Subtract Fractions

Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

$$\frac{7}{12} + \frac{3}{4} =$$

Look at the fractional units.
*Do they have **LIKE units**?*

No! *Are the units **RELATED**?*

Yes! *Which fraction can we RENAME so the fractional units, or denominators, are the same?*

3/4

Whiteboard Exchange: Add & Subtract Fractions

Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

$$\frac{7}{8} - \frac{3}{4} =$$

Look at the fractional units.
*Do they have **LIKE units**?*

No! *Are the units **RELATED**?*

Yes! *Which fraction can we RENAME so the fractional units, or denominators, are the same?*

3/4

Whiteboard Exchange: Add & Subtract Fractions

Raise your hand when you know the answer to each question.
Wait for my signal to say the answer.

$$\frac{2}{3} - \frac{4}{15} =$$

Look at the fractional units.
*Do they have **LIKE units**?*

No! *Are the units **RELATED**?*

Yes! *Which fraction can we RENAME so the fractional units, or denominators, are the same?*

2/3

Represent liquid measurements on a line plot and estimate the amount in each cup if the liquid were redistributed equally.

Part One:

Insert the **Liquid Line Plot** (**PAGE 151**) into your dry-erase sleeve.

Make a line plot to represent the data shown that tells how much liquid is in each of the measuring cups.
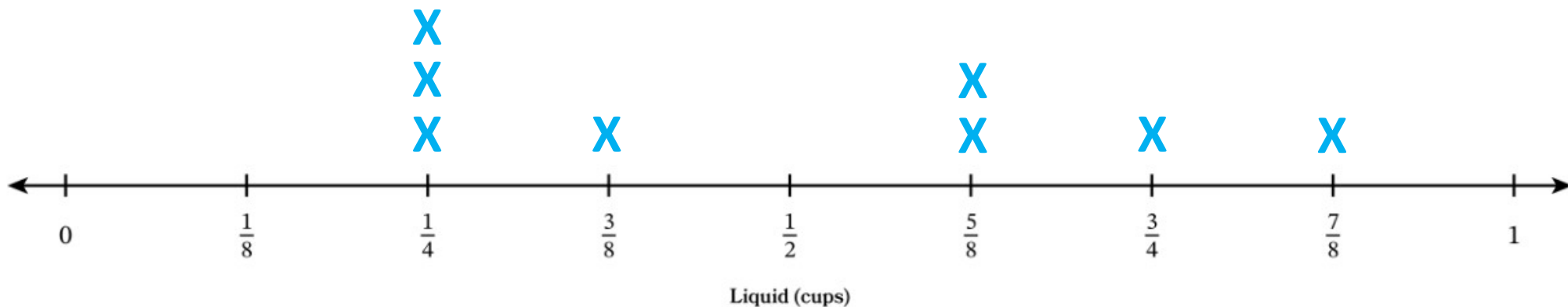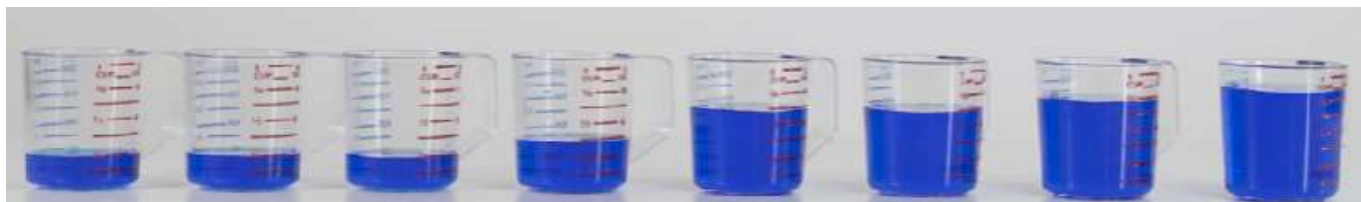

Play Part 1   Play Part 2   Play Part 3

Represent liquid measurements on a line plot and estimate the amount in each cup if the liquid were redistributed equally.

Part One:

Liquid in Measuring Cups

Liquid (cups)

Now, let's watch parts 2 and 3.

Represent liquid measurements on a line plot and estimate the amount in each cup if the liquid were redistributed equally.

Part Two & Three:

Liquid in Measuring Cups

Liquid (cups)
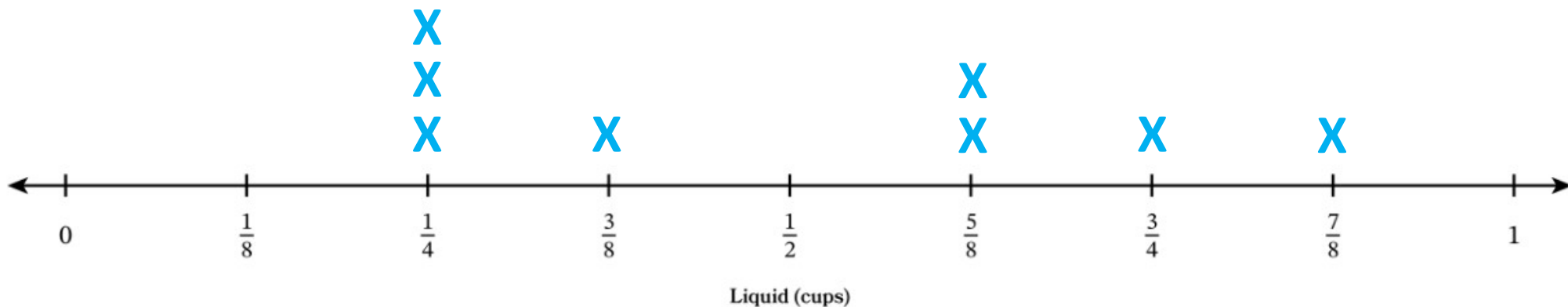
Equally Redistribute Fraction Data

How many measurements did we represent on our line plot?

8

Our goal is to EQUALLY REDISTRIBUTE the liquid, so each measuring cup contains the same amount of liquid.
Let's use cubes to represent each measurement.
Why do you think using cubes is a good idea?

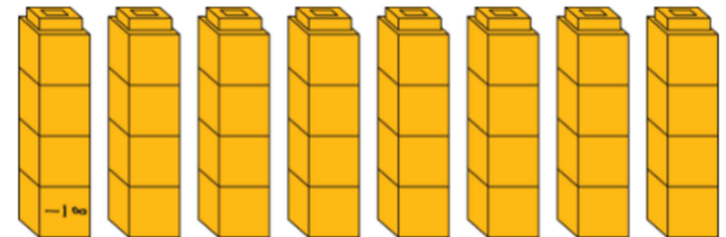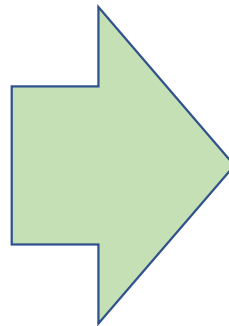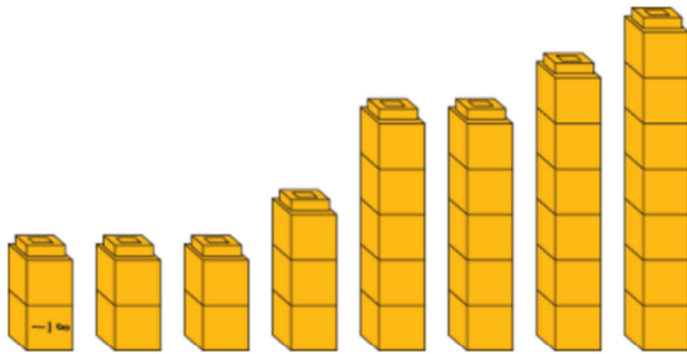**What unit should we use to represent the measurements? Why?**

Eighths

Now our goal is to REDISTRIBUTE them so each container has the same amount .
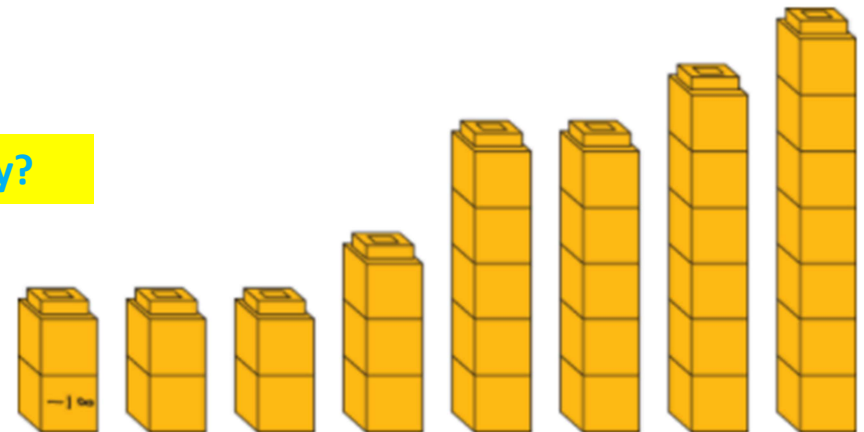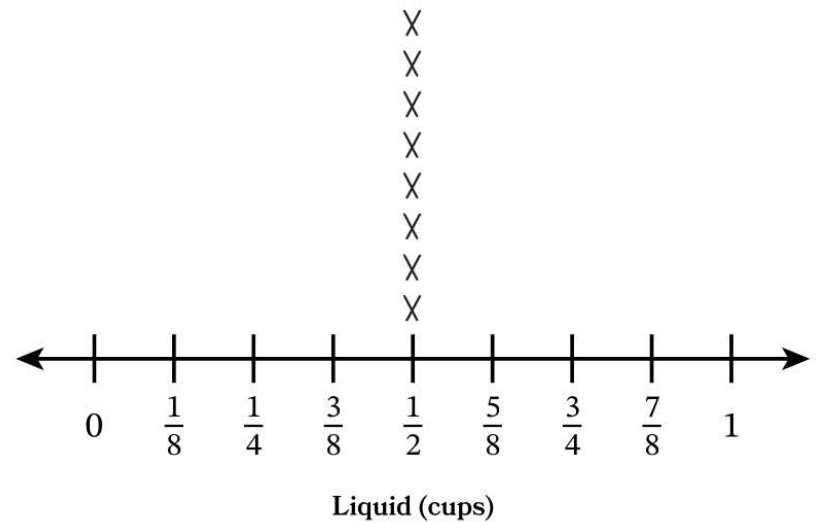
Equally Redistribute Fraction Data

What do you think a line plot with redistributed data will look like?

Draw it on your line plot.

Our goal was to REDISTRIBUTE the liquid. Based on the line part what does redistribute mean?
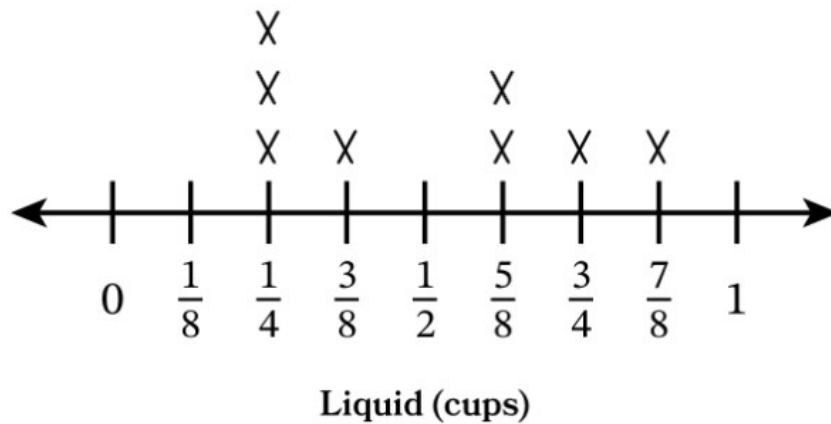
Liquid (cups)

Equally Redistribute Fraction Data
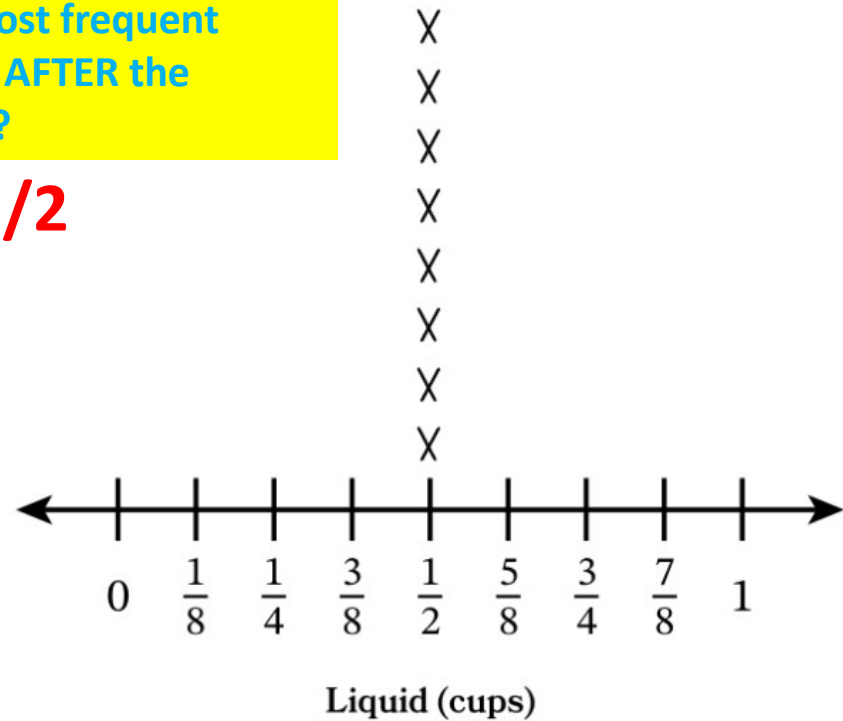
Liquid in Measuring Cups

Liquid in Measuring Cups

What was the most frequent measurement BEFORE the redistribution?

1/4

What is the most frequent measurement AFTER the redistribution?

2/4 or 1/2

Liquid (cups)

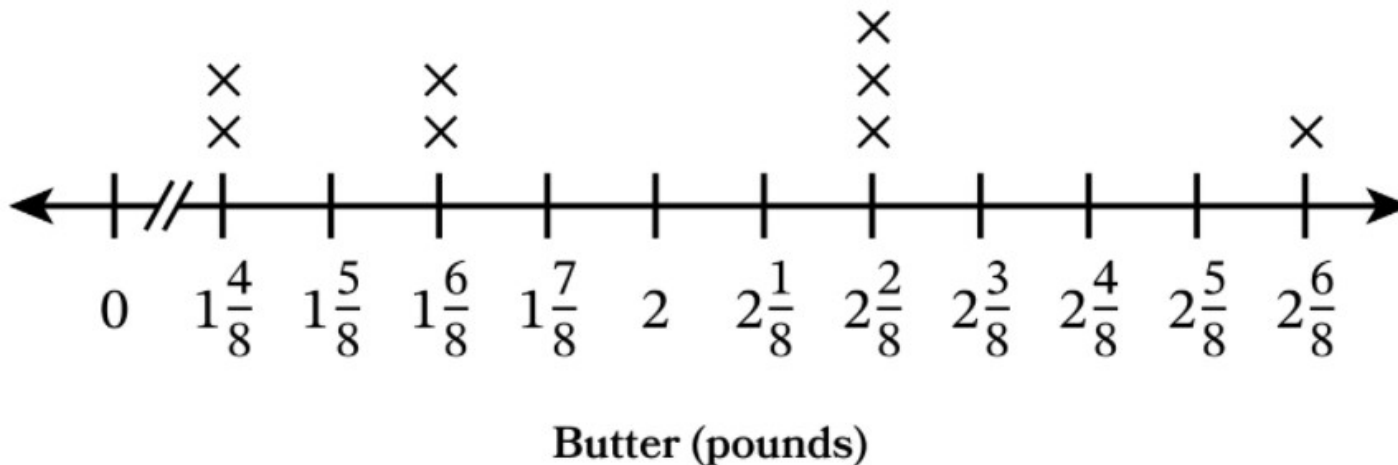Liquid (cups)

What do you notice about this line plot?

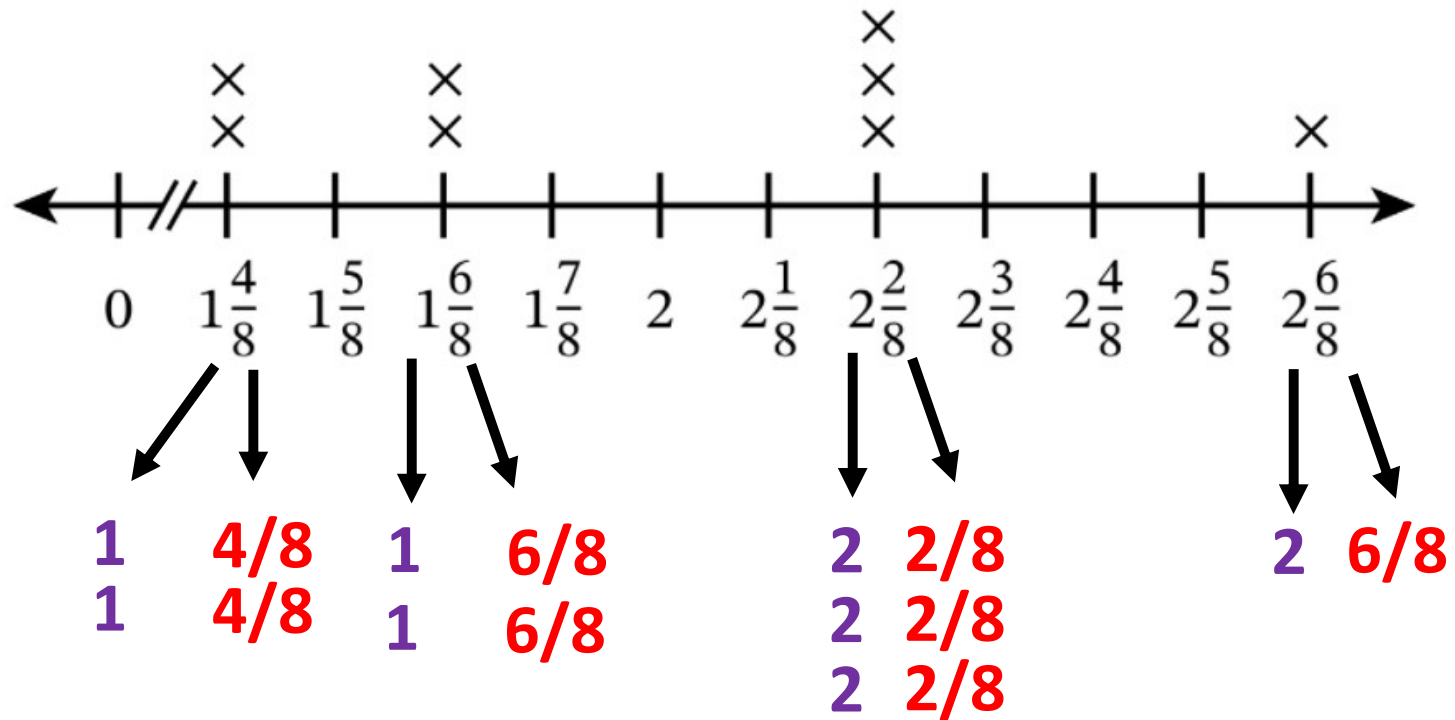**This line plot represents the number of pounds of butter in 8 different bowls.**
We need to redistribute the whole pounds of butter and fractions of butter this time.

Butter in the Bakery

Butter (pounds)

What if we represented one WHOLE pound of butter with one color (8 cubes) and the FRACTIONAL units with another color.   For example, below shows 2 2/8 pounds:

1 2/8

1 whole

Whole Numbers

1 + 1 + 1 + 1 + 2 + 2 + 2 + 2 = 12

Fractional Units

4/8 + 4/8 + 6/8 + 6/8 + 2/8 + 2/8 + 2/8 + 6/8 = 32/8 = 4

Redistribution

12 + 4 = 16 total pounds of butter

16 ÷ 8 bowls = 2 pounds per bowl

Number line labeled: 0, $1\frac{4}{8}$, $1\frac{5}{8}$, $1\frac{6}{8}$, $1\frac{7}{8}$, 2, $2\frac{1}{8}$, $2\frac{2}{8}$, $2\frac{3}{8}$, $2\frac{4}{8}$, $2\frac{5}{8}$, $2\frac{6}{8}$
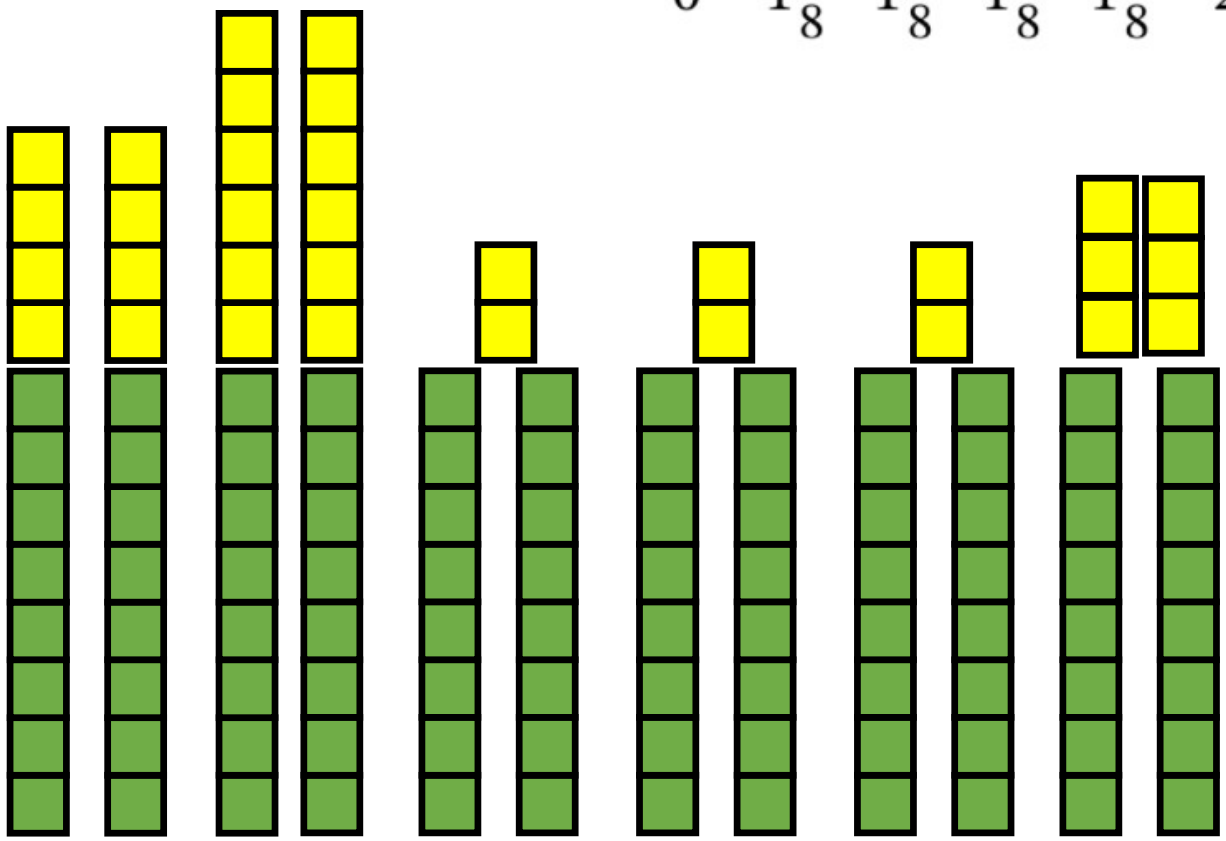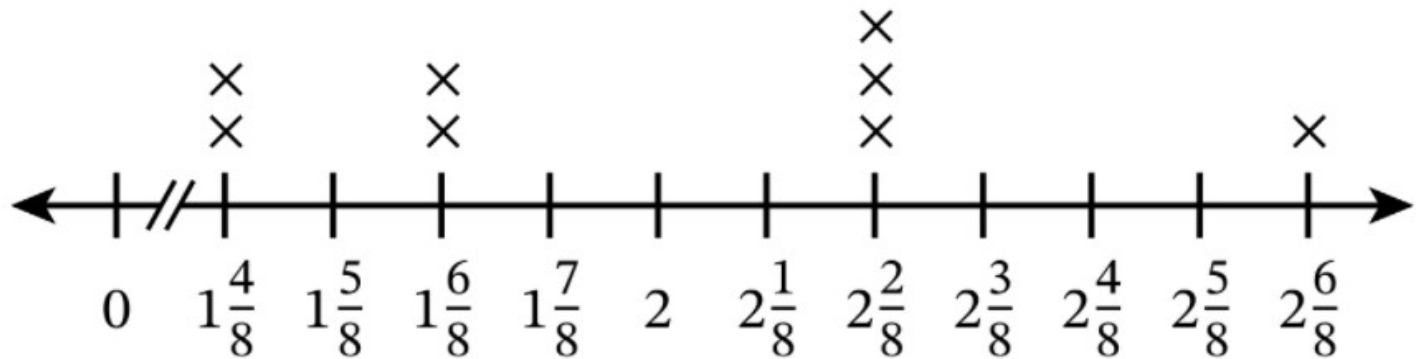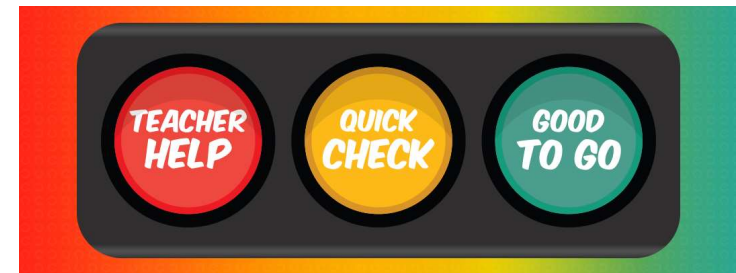
32/8 or 4 pounds of butter

12 full pounds of butter
12 + 4 = 16 total pounds
16 ÷ 8 bowls = 2 pounds per bowl

LAND (10-min)   **Exit Ticket**

Exit Ticket – PAGE 157

Small Group Time:
Problem Set Page 153 - 154

Homework:
Page 113   APPLY BOOK

Name _____ Date _____
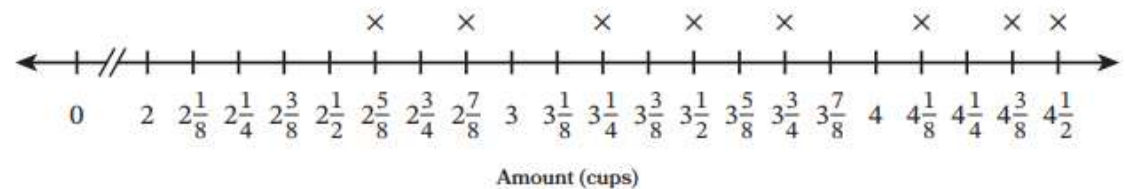
17

The line plot shows the number of cups of sand in 8 different containers collected by a scientist.

Amount of Sand

Amount (cups)

The sand is redistributed equally among the 8 containers for a test. How many cups of sand are in each container after redistribution?