Name _____

Compare and Order Fractions

(**I Can**) use number lines to compare and order fractions.

🔒 ▦ UNLOCK the Problem Real World
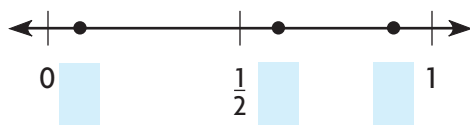
Yumi has equal-sized bins for the recycling center. She filled $\frac{3}{5}$ of a bin with plastics, $\frac{1}{12}$ of a bin with paper, and $\frac{9}{10}$ of a bin with glass. Which bin is the most full?

- Underline what you need to find.
- Circle the fractions you will compare.

Example 1 Locate and label $\frac{3}{5}$, $\frac{1}{12}$, and $\frac{9}{10}$ on the number line.

0          $\frac{1}{2}$ 1

Math Idea

Sometimes it is not reasonable to find the exact location of a point on a number line. Benchmarks can help you find approximate locations.

STEP 1 Compare each fraction to $\frac{1}{2}$.

$\frac{3}{5} \bigcirc \frac{1}{2}$ $\frac{1}{12} \bigcirc \frac{1}{2}$ $\frac{9}{10} \bigcirc \frac{1}{2}$

_____ and _____ are both greater than $\frac{1}{2}$.

_____ is less than $\frac{1}{2}$.

Label $\frac{1}{12}$ on the number line.

STEP 2 Compare $\frac{3}{5}$ and $\frac{9}{10}$.

Think: Use 10 as a common denominator.

$$\frac{3}{5} = \frac{ \times }{ \times } = \frac{}{}$$

Since $\frac{6}{10} \bigcirc \frac{9}{10}$, you know that $\frac{3}{5} \bigcirc \frac{9}{10}$.

Label $\frac{3}{5}$ and $\frac{9}{10}$ on the number line.

The fraction the greatest distance from 0 has the greatest value.

The fraction with the greatest value is _____.

So, the bin with _____ is the most full.

- Compare the distance between $\frac{3}{5}$ and 0 and the distance between $\frac{9}{10}$ and 0. What can you conclude about the relationship between $\frac{3}{5}$ and $\frac{9}{10}$? Explain.

_____

_____

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

How do you know you located $\frac{3}{5}$ on the number line correctly?

Example 2 Write $\frac{7}{10}$, $\frac{1}{3}$, $\frac{7}{12}$, and $\frac{8}{10}$ in order from least to greatest.

0      $\frac{1}{2}$ 1
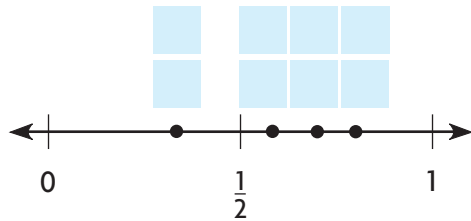
STEP 1 Compare each fraction to $\frac{1}{2}$.

List fractions that are less than $\frac{1}{2}$: _____

List fractions that are greater than $\frac{1}{2}$: _____

The fraction with the least value is _____.

Locate and label $\frac{1}{3}$ on the number line.

STEP 2 Compare $\frac{7}{10}$ to $\frac{7}{12}$ and $\frac{8}{10}$.

Think: $\frac{7}{10}$ and $\frac{7}{12}$ have a common numerator.

$$\frac{7}{10} \bigcirc \frac{7}{12}$$

Think: $\frac{7}{10}$ and $\frac{8}{10}$ have a common denominator.

$$\frac{7}{10} \bigcirc \frac{8}{10}$$

Locate and label $\frac{7}{10}$, $\frac{7}{12}$, and $\frac{8}{10}$ on the number line.

The fractions in order from least to greatest are _____.

So, _____ < _____ < _____ < _____ .

Try This! Write $\frac{3}{4}$, $\frac{3}{6}$, $\frac{1}{3}$, and $\frac{2}{12}$ in order from least to greatest.

_____ < _____ < _____ < _____