Comparing and Ordering Fractions

Course 1 Lesson 2.6 and 2.7; Standard N.S. 1.1
Course 2 Lesson 5.4

(Note: Answers to problems are shown inside of brackets [].)

Warm Up:

Evaluate:

1a) $7-8$ 1b) $-15-6$ 1c) $4-(-3)$ 1d) $3x-8x+2x$ $[-1, -21, 7, -3x]$

2) **Use < , > , = :** $\frac{3}{8} \bigcirc \frac{4}{7}$ Justify your answer in at least 2 ways. $[<]$

3) CST Released item:

Simplify: $\frac{4^2 \bullet 3^5 \bullet 2^4}{4^3 \bullet 3^5 \bullet 2^2}$ $[C]$

A) $\frac{4}{2}$ B) $\frac{3}{2}$ C) 1 D) $\frac{1}{2}$

Vocabulary: **Benchmark**

Discuss properties of landmarks. They help you navigate in a neighborhood you don't know well. Benchmarks help you navigate on a number line. (Teacher note: In this lesson for fractions, we are using $0, \frac{1}{2}, 1$ as benchmarks. Do not explain this to students yet.)

Think, Pair, Share

Ex 1) "Copy these fractions."

$$\left\{\frac{5}{6}, \frac{4}{7}, \frac{9}{20}, \frac{87}{100}, \frac{1}{8}, \frac{40}{20}, \frac{7}{13}, \frac{9}{10}\right\}$$

"Identify the 3 fractions in the set that are closest in value to $\frac{1}{2}$. Discuss why you chose those 3 with your partner."

$$\text{Closest to } \frac{1}{2} \rightarrow \left[\frac{4}{7}, \frac{9}{20}, \frac{7}{13}\right]$$

Discuss the solution.

(Note: This will produce a rich discussion about the relationship of numerator to denominator that may lead to drawing visual representations for conceptual understanding.)

Ex 2) "Copy these fractions."

$$\left\{\frac{3}{80}, \frac{200}{3}, \frac{1}{12}, \frac{9}{16}, \frac{3}{8}, \frac{43}{50}, \frac{1}{10}, \frac{5}{16}\right\}$$

"Identify 3 fractions in the set that are closest in value to 0. Discuss why you chose those 3 with your partner.

$$\text{Closest to } 0 \rightarrow \left[\frac{1}{12}, \frac{3}{80}, \frac{1}{10}\right]$$

Discuss the solution.

Ex 3) "Copy these."

$$\left\{\frac{3}{5}, \frac{9}{10}, \frac{93}{100}, \frac{2}{50}, \frac{9}{8}, \frac{11}{5}, \frac{11}{20}, \frac{1}{3}\right\}$$

"Identify the 3 fractions in this set that are closest in value to 1. Discuss with your partner."

$$\text{Closest to } 1 \rightarrow \left[\frac{9}{10}, \frac{93}{100}, \frac{9}{8}\right]$$

Discuss the solution.

"The benchmarks of $0, \frac{1}{2}, 1$ are our landmarks for navigating the number line with fractions. Once you are comfortable identifying which benchmark a fraction is closest to,

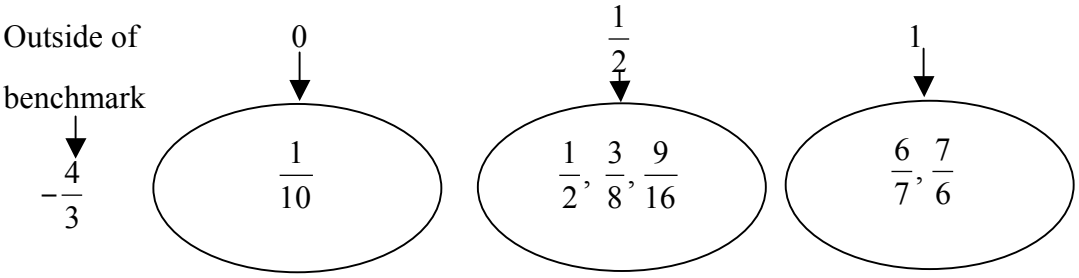
it becomes much easier to order a list of fractions."

Ex 4) Order from least to greatest

$$\left\{\frac{1}{2}, -\frac{4}{3}, \frac{6}{7}, \frac{3}{8}, \frac{7}{6}, \frac{1}{10}, \frac{9}{16}\right\}$$

"Let's use our benchmarks to sort these numbers."

Note: Answers to problems are shown inside of brackets [ ].



"Now that we have grouped the fractions around the benchmarks, let's put them in order.

$$\left[-\frac{4}{3} < \frac{1}{10} < \frac{3}{8} < \frac{1}{2} < \frac{9}{16} < \frac{6}{7} < \frac{7}{6}\right]$$

(Note: For the fractions close to $\frac{1}{2}$, talk through less than, equal to, greater than using the relationship of numerator to denominator. For the fractions closest to 1, discuss

less than and greater than 1.)

Ex 5) You Try!

Order from least to greatest

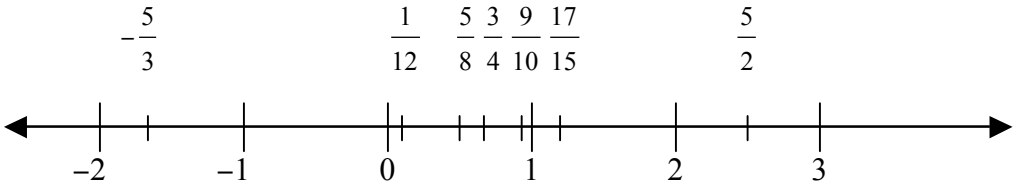
$$\left\{\frac{5}{2}, -\frac{3}{4}, -\frac{5}{3}, \frac{17}{15}, \frac{9}{10}, \frac{5}{8}, \frac{1}{12}\right\}$$

(Note: $\frac{3}{4}$ & $\frac{5}{8}$ may require a common denominator. All others can be reasoned.)

$$\left[-\frac{5}{3} < \frac{1}{12} < \frac{5}{8} < \frac{3}{4} < \frac{9}{10} < \frac{17}{15} < \frac{5}{2}\right]$$

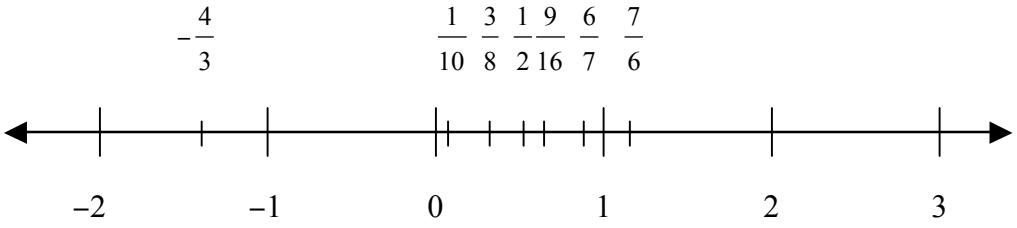
Ex 6)

Plot the points from example 5 on a number line. You may approximate.



Ex 7) You Try!

Plot the points from Example 4 on a number line.



HOMEWORK:

Worksheet of fraction sets.

Comparing and Ordering Fractions
Homework Worksheet

Name_____

Date_____Pd_____

1. Identify the three fractions closest to 0.

$$\left\{\frac{19}{20}, \frac{1}{8}, \frac{6}{15}, -\frac{2}{19}, \frac{4}{9}, \frac{7}{2}, \frac{4}{75}\right\}$$

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2. Identify the three fractions closest to $\frac{1}{2}$.

$$\left\{\frac{19}{40}, \frac{7}{8}, \frac{8}{15}, -\frac{2}{19}, \frac{4}{9}, \frac{7}{2}, \frac{4}{75}\right\}$$

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3. Identify the three fractions closest to 1.

$$\left\{-\frac{19}{20}, \frac{3}{8}, \frac{14}{15}, -\frac{2}{19}, \frac{10}{9}, \frac{7}{2}, \frac{4}{5}\right\}$$

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4. Order from least to greatest.

$$\left\{-\frac{19}{20}, \frac{5}{8}, \frac{14}{15}, \frac{10}{19}, \frac{10}{9}, \frac{5}{2}, \frac{6}{5}\right\}$$

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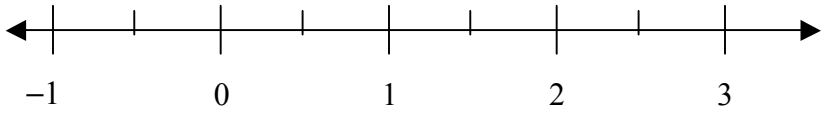
5. Plot the fractions from #4 on the number line.



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6. Order from least to greatest.

$$\left\{\frac{19}{40}, \frac{7}{8}, \frac{8}{15}, -\frac{2}{19}, \frac{4}{9}, \frac{7}{4}, \frac{4}{75}, \frac{27}{25}\right\}$$

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7. Plot the fractions from #6 on the number line.