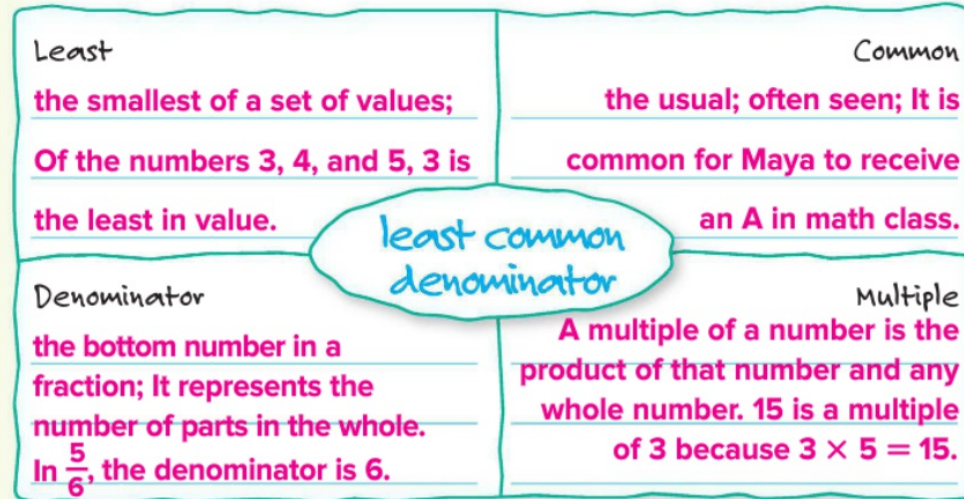# Vocabulary Start-Up

The **least common denominator**, or LCD, is the least common multiple of the denominators of two or more fractions.

Complete the graphic organizer. Write the meaning of each word in the appropriate box. Provide examples. Sample answers are given.

Least

the smallest of a set of values; Of the numbers 3, 4, and 5, 3 is the least in value.

Common

the usual; often seen; It is common for Maya to receive an A in math class.

least common denominator

Denominator

the bottom number in a fraction; It represents the number of parts in the whole. In $\frac{5}{6}$, the denominator is 6.

Multiple

A multiple of a number is the product of that number and any whole number. 15 is a multiple of 3 because $3 \times 5 = 15$.

Real-World Link

Essential Question

WHEN is it better to use a fraction, a decimal, or a percent?
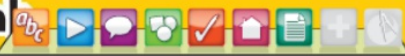
Vocabulary

least common denominator (LCD)

Common Core State Standards

Content Standards
Preparation for 6.RP.3c

MP Mathematical Practices
1, 2, 3, 4, 5, 6

Real-World Link

- Earnest is baking, but he wants to use only one measuring cup. He needs $\frac{1}{2}$ cup of sugar and $\frac{3}{4}$ cup of flour. What is the least common multiple of the denominators? **4**

- What size measuring cup should he use: $\frac{1}{2}$ cup, $\frac{1}{3}$ cup, or $\frac{1}{4}$ cup? Explain. **He should use the $\frac{1}{4}$ cup measuring cup because the least common denominator of $\frac{1}{2}$ and $\frac{3}{4}$ is 4 and the fraction $\frac{1}{4}$ has a denominator of 4.**

Which MP Mathematical Practices did you use?
Shade the circle(s) that applies.

① Persevere with Problems
② Reason Abstractly
③ Construct an Argument
④ Model with Mathematics

⑤ Use Math Tools
⑥ Attend to Precision
⑦ Make Use of Structure

$\frac{15}{24} > \frac{14}{24}$, since 15 > 14. So, $\frac{5}{8} > \frac{7}{12}$.

b) C < D
24

Got it? Do these problems to find out.

a. $\frac{2}{3}$ > $\frac{4}{9}$ **b.** $\frac{5}{12}$ < $\frac{7}{8}$ **c.** $\frac{1}{6}$ < $\frac{5}{18}$

(handwritten work:
3/3, 6/9, 4/9
2×5 = 10, 24, 2×... 21
7×3 = 21
3×3 = 3/18 < 5/17
24 24)

Example

2. Order the fractions $\frac{1}{2}$, $\frac{9}{14}$, $\frac{3}{4}$, and $\frac{5}{7}$ from least to greatest.

Rewrite each fraction using the LCD of 28.

$\overset{\times 14}{\frac{1}{2}} = \frac{14}{28}$ $\overset{\times 2}{\frac{9}{14}} = \frac{18}{28}$ $\overset{\times 7}{\frac{3}{4}} = \frac{21}{28}$ $\overset{\times 4}{\frac{5}{7}} = \frac{20}{28}$
$\underset{\times 14}{}$ $\underset{\times 2}{}$ $\underset{\times 7}{}$ $\underset{\times 4}{}$

Since $\frac{14}{28} < \frac{18}{28} < \frac{20}{28} < \frac{21}{28}$, the order of the original fractions from least to greatest is $\frac{1}{2}, \frac{9}{14}, \frac{5}{7}, \frac{3}{4}$.

Show your work.

Got it? Do this problem to find out.

d. Order $\frac{1}{2}$, $\frac{5}{6}$, $\frac{2}{3}$, and $\frac{3}{5}$ from least to greatest.

(handwritten answer:)
d. $\frac{1}{2}, \frac{3}{5}, \frac{2}{3}, \frac{5}{6}$

4. Lucita made 85% of her free throws. Henri made $\frac{7}{8}$ of his free throws. Who has the better average? Explain.

85% ◯ $\frac{7}{8}$ Write the sentence.

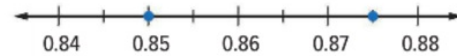0.850 ◯ 0.875   Write each number as a decimal. Annex a zero to 0.85.

0.8**5**0 < 0.8**7**5   Compare the hundredths place. 5 < 7

Since 0.850 < 0.875, Henri has the better average.

Check

Since 0.85 is to the left of 0.875, the answer is correct. ✔

Got it? Do these problems to find out.

e. $\frac{2}{3}$ ⊘ 0.6   **f.** 0.7 ⊘ $\frac{8}{11}$ **g.** $\frac{1}{5}$ ⊜ 0.2

h. 42% ⊘ 0.44   **i.** 7% ⊘ $\frac{7}{10}$ **j.** 6.5 ⊜ 650%

1. Order the fractions $\frac{4}{5}$, $\frac{1}{2}$, $\frac{9}{10}$, and $\frac{3}{4}$ from least to greatest. (Examples 1 and 2)

$$\frac{1}{2}, \frac{3}{4}, \frac{4}{5}, \frac{9}{10}$$

Show your work.

2. Cora spends $\frac{2}{3}$ of her free time blogging on the Internet. Leah spends 60% of her free time blogging on the Internet. Who spends more of her free time blogging?

(Examples 3 and 4) **Cora**

3. The table shows the wins for some middle school football teams. Which team has the greatest fraction of wins? (Example 5)

Eagles

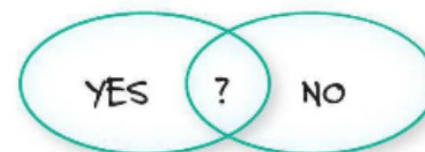| Team	Wins
Eagles	95%
Wolves	$\frac{9}{10}$
Mustangs	0.89

4. **ⓔ Building on the Essential Question** How do you compare fractions, decimals, and percents?

Sample answer: Write each value as a decimal with the same number of places. Then compare the values of the decimals.

Rate Yourself!

Are you ready to move on?
Shade the section that applies.

YES ? NO

For more help, go online to access a Personal Tutor.

Tutor

Fill in each ◯ **with <, >, or = to make a true statement.** (Examples 1 and 3)

1. $\frac{1}{3}$ ⊘< $\frac{3}{5}$

2. $\frac{7}{12}$ ⊘> $\frac{1}{2}$

🏠3. $\frac{1}{4}$ ⊘< 0.4

4. 0.7 ⊘< $\frac{7}{9}$

Show your work.

Order the fractions from least to greatest. (Example 2)

5. $\frac{1}{2}, \frac{2}{3}, \frac{1}{4}, \frac{5}{6}$
   $\frac{1}{4}, \frac{1}{2}, \frac{2}{3}, \frac{5}{6}$

6. $\frac{2}{3}, \frac{2}{9}, \frac{5}{6}, \frac{11}{18}$
   $\frac{2}{9}, \frac{11}{18}, \frac{2}{3}, \frac{5}{6}$

7. Darius spends 35% of his time doing math homework. Alex spends $\frac{2}{5}$ of his time doing math homework. Who spends more homework time on math? Explain. (Example 4)
   Alex; 0.35 < 0.40

8. Three snack bars contain $\frac{1}{5}$, 0.22, and 19% of their Calories from fat. Which snack bar contains the least amount of Calories from fat? (Example 5)
   the snack bar with 19% Calories from fat

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9. **MP Model with Mathematics** Use the graphic novel frame below for Exercises a–b.

a. Write each score as a decimal. __0.20, 0.25, 0.20__

b. Compare the three scores. __Two are the same; 0.25 is the greatest score.__

10. **MP** **Be Precise** Complete the graphic organizer. Write the original numbers to complete the statement.

Number	Steps to Write the Number as a Decimal with Three Places		Decimal
$\frac{3}{8}$	Divide the **numerator** by the **denominator**.	→	0.375
0.3	The number is a decimal. Annex **two** zeros.	→	0.300
38.7%	Move the **decimal** point **two** places to the left. Remove the **percent** symbol.	→	0.387

So, **0.3** < **$\frac{3}{8}$** < **38.7%** .

11 Order the portion of responses listed in the table from least to greatest.

8%, 17%, 0.2, $\frac{11}{20}$

Number of Times Eating Fast Food per Week	0	1–2	3
Portion of Responses	17%	$\frac{11}{20}$	

12. **MP** **Reason Abstractly** Specify three fractions with different denominators that have an LCD of 24. Then arrange the fractions in order from least to greatest.

Sample answer: $\frac{3}{8}, \frac{2}{3}, \frac{5}{6}$

13. **MP** **Persevere with Problems** Order $\frac{3}{8}, \frac{3}{7},$ and $\frac{3}{9}$ from least to greatest without writing equivalent fractions with a common denominator. Explain your strategy. $\frac{3}{9}, \frac{3}{8},$ **and** $\frac{3}{7};$ **Because the numerators are the same,**

the larger the denominator, the smaller the fraction.

14. **MP** **Persevere with Problems** Are the fractions $\frac{3}{9}, \frac{3}{10}, \frac{3}{11},$ and $\frac{3}{12}$ arranged in order from least to greatest or from greatest to least? Explain.

greatest to least; Sample answer: When fractions have the same numerator,

the fraction with the larger denominator will be the smaller fraction.

15. **MP** **Construct an Argument** Is 0.4 less than, greater than, or equal to 44%?

Explain your reasoning. **less than; Sample answer: 0.4 is equivalent to 0.40, and**

44% is equivalent to 0.44. Zero is less than 4 when you compare the hundredths.