Practice Lesson 14 Compare Fractions

Unit 4

Practice and Problem Solving

1. Shade the models to show $\frac{3}{5}$ and $\frac{7}{12}$.

2. Compare $\frac{3}{5}$ and $\frac{7}{12}$ using symbols and words.
   
   $\frac{3}{5} > \frac{7}{12}$

3. Explain how you used the models in problem 1 to show how the two fractions compare in problem 2.

4. Label $\frac{7}{8}$ on the number line below.

5. Compare $\frac{7}{8}$ and $\frac{7}{12}$ using symbols and words.
   
   $\frac{7}{8} > \frac{7}{12}$

6. Explain how you used the number lines in problems 4 and 5 to show how the two fractions compare in problem 6.
Lesson 14

Compare Fractions

**Find a Common Numerator or Denominator**

Study the example problem showing how to compare fractions by finding a common denominator. Then solve problems 1–7.

**Example**

A length of ribbon is \( \frac{3}{4} \) foot. Another length of ribbon is \( \frac{5}{6} \) foot. Compare the lengths using a symbol.

- **Find a common denominator.**
- **Write the equivalent fractions.**
- **Compare the numerators.**

\[
\begin{align*}
\frac{3}{4} \times \frac{3}{3} &= \frac{9}{12} \\
\frac{5}{6} \times \frac{2}{2} &= \frac{10}{12}
\end{align*}
\]

\[
\frac{9}{12} \frac{10}{12}
\]

\( \frac{9}{12} \lt \frac{10}{12} \)

\( \frac{3}{4} \lt \frac{5}{6} \)

**B 1** Shade the models below to show \( \frac{3}{4} \) and \( \frac{5}{6} \).

- Fill in the blank to show the comparison.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
</table>

- Divide each model in problem 1 into 12 equal parts to show an equivalent fraction. Write the equivalent fractions and symbol to show the comparison.

\[
\frac{9}{12} < \frac{10}{12}
\]

**M 3** Compare \( \frac{2}{7} \) and \( \frac{3}{8} \) by finding a common denominator.

- a. Write a fraction equivalent to \( \frac{2}{7} \) with a denominator of 12.
- b. Compare the fractions.

\[
\frac{2}{7} \times \frac{12}{12} = \frac{24}{84}
\]

\[
\frac{3}{8} \times \frac{12}{12} = \frac{36}{84}
\]

\[
\frac{24}{84} \lt \frac{36}{84}
\]

**C 7** Can two fractions with the same numerator and different denominators be equal? Use words and numbers to explain.

- No. Possible explanation: Fractions with the same numerator have the same number of parts, but the size of the parts is different when the denominators are different. The fractions can’t be equal, because the fraction with the smaller-size parts will be the smaller fraction. For example, \( \frac{1}{2} \) is greater than \( \frac{1}{3} \) because fourths are greater than fifths, \( \frac{1}{4} \gt \frac{1}{5} \).
Use a Benchmark to Compare Fractions

Study the example problem using 1 as a benchmark to compare fractions. Then solve problems 1–4.

Example
Carol compared $\frac{3}{4}$ and $\frac{2}{5}$. She says $\frac{3}{4} > \frac{2}{5}$ because both the numerator and the denominator in $\frac{3}{4}$ are greater than the numerator and denominator in $\frac{2}{5}$.

3 > 2 and 4 > 1. Is Carol correct?

Compare each fraction to the benchmark 1.

\[
\begin{array}{c|cccc}
\text{Fraction} & 0 & \frac{1}{4} & \frac{1}{2} & 1 \\
\hline
\frac{3}{4} & \checkmark & & \checkmark \\
\frac{2}{5} & \checkmark & & \\
\end{array}
\]

\[
\begin{array}{c|cccc}
\text{Comparison} & \frac{3}{4} < 1 & \frac{2}{5} > \frac{1}{2} \\
\hline
\end{array}
\]

Carol is not correct.

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

a. Label $\frac{9}{10}$ and $\frac{3}{2}$ on the number line below.

b. Which fraction is greater than 1?

c. Which fraction is less than 1?

d. Fill in the blank. Explain how you found your answer.

\[
\frac{9}{10} \quad \frac{3}{2}
\]

Solve.

Compare $\frac{5}{6}$ and $\frac{1}{3}$ using the benchmark fraction $\frac{1}{2}$.

a. Label $\frac{5}{6}$ and $\frac{1}{3}$ on the number line below.

b. Which fraction is greater than $\frac{1}{2}$?

c. Which fraction is less than $\frac{1}{2}$?

d. Fill in the blank. Explain how you found your answer.

\[
\begin{array}{c|cccc}
\text{Fraction} & 0 & \frac{1}{3} & \frac{1}{2} & 1 \\
\hline
\frac{5}{6} & \checkmark \\
\frac{1}{3} & \checkmark \\
\end{array}
\]

Answers will vary. Possible answer: $\frac{5}{6}$ is greater than $\frac{1}{2}$ because $\frac{5}{6}$ is greater than $\frac{1}{2}$ and $\frac{1}{3}$ is less than $\frac{1}{2}$.

Use a benchmark to compare the fractions $\frac{7}{10}$ and $\frac{5}{12}$. Explain how you found your answer.

Answers will vary. Possible answer: $\frac{7}{10}$ is equal to $\frac{21}{30}$ so $\frac{7}{10}$ is greater than $\frac{1}{2}$.

\[
\frac{7}{10} \quad \frac{5}{12}
\]

Tell whether each number sentence is True or False.

Then write the benchmark you could use to compare the fractions.

\[
\begin{array}{c|c|c|c}
\text{Sentence} & \text{True} & \text{False} & \text{Benchmark} \\
\hline
a. \frac{9}{8} > \frac{11}{12} & & & 1 \\
b. \frac{3}{4} < \frac{5}{6} & & & 1 \\
c. \frac{7}{10} < \frac{4}{5} & & \times & 2 \\
d. \frac{4}{5} > \frac{2}{3} & & \text{False} & 1 \\
e. \frac{3}{5} > \frac{2}{10} & & \text{False} & 1 \\
\end{array}
\]
Practice Lesson 14  Compare Fractions

Solve.

1. Which of the following is greater than \( \frac{3}{5} \)?
   
   Circle all that apply.
   
   A. \( \frac{2}{5} \)
   B. \( \frac{3}{6} \)
   C. \( \frac{4}{12} \)
   D. \( \frac{5}{6} \)

2. Harry ate \( \frac{3}{5} \) of a sandwich. Sven ate \( \frac{2}{5} \) of a sandwich. Micah ate \( \frac{3}{10} \) of a sandwich. Gabe ate \( \frac{5}{12} \) of a sandwich. Who ate the most of his sandwich?
   
   A. Harry
   B. Sven
   C. Micah
   D. Gabe

3. Compare \( \frac{3}{5} \) and \( \frac{1}{2} \). Describe two methods you could use to compare the fractions.

   Method A: Possible explanation:
   - First, find a common denominator for each pair of fractions.
   - \( \frac{3}{5} = \frac{6}{10} \) and \( \frac{1}{2} = \frac{5}{10} \).
   - \( \frac{6}{10} > \frac{5}{10} \).

   Method B: Possible explanation:
   - To compare both fractions to the benchmark 1.
   - \( \frac{3}{5} \) is greater than 1, and \( \frac{1}{2} \) is less than 1.
   - \( \frac{3}{5} > \frac{1}{2} \).

4. Erica and Matt earn the same amount of money each month. Erica saves \( \frac{3}{10} \) of her earnings. Matt saves \( \frac{3}{6} \) of his earnings. Which explanation correctly tells who saves more?

   A. Erica saves more because tenths are greater than sixths.
   B. Matt saves less because sixths are less than tenths.
   C. Erica saves more because \( \frac{3}{10} < \frac{3}{6} \).
   D. Matt saves more because \( \frac{3}{6} > \frac{3}{10} \).

   Possible answer: Fran chose C as the correct answer. How did she get that answer?

   She mistakenly thought that tenths are greater than sixths.