Comparing

< Is less than $\quad 2 < 5$

> Is greater than $\quad 5 > 2$

= Is equal to $\quad \dfrac{1}{2} = \dfrac{3}{6}$

$$\dfrac{1}{6} < \dfrac{4}{6}$$

$$\dfrac{5}{7} > \dfrac{5}{9}$$

$$\dfrac{2}{3} < \dfrac{3}{4}$$

$$\dfrac{8}{12} < \dfrac{9}{12}$$

$$\dfrac{2}{3} \cdot \dfrac{4}{4} = \dfrac{8}{12}$$

$$\dfrac{3}{4} \cdot \dfrac{3}{3} = \dfrac{9}{12}$$

$$\dfrac{1}{2} \cdot \dfrac{6}{6} = \dfrac{6}{12}$$

Ordering

$$\dfrac{2}{3}, \dfrac{3}{4}, \dfrac{1}{2}$$

Least to greatest

$$\dfrac{1}{2}, \dfrac{2}{3}, \dfrac{3}{4}$$

Lesson 2 Compare and Order Rational Numbers

To compare fractions, rewrite them so they have the same denominator. The **least common denominator (LCD)** of two fractions is the **LCM** of their denominators.

Another way to compare fractions is to express them as decimals. Then compare the decimals.

Example 1

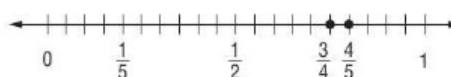**Which fraction is greater, $\frac{3}{4}$, or $\frac{4}{5}$?**

Method 1 Rename using the LCD.

$\frac{3}{4} = \frac{3 \times 5}{4 \times 5} = \frac{15}{20}$

$\frac{4}{5} = \frac{4 \times 4}{5 \times 4} = \frac{16}{20}$

The LCD is 20.

Because the denominators are the same, compare numerators.

Since $\frac{16}{20} > \frac{15}{20}$, then $\frac{4}{5} > \frac{3}{4}$.

Method 2 Graph each rational number on a number line.

The number line shows that $\frac{4}{5} > \frac{3}{4}$.

Exercises

Replace each ⬤ with <, >, or = to make a true sentence. Use a number line if necessary.

1. $\frac{1}{2}$ > $\frac{3}{8}$

   $\frac{1}{2} \cdot \boxed{\frac{4}{4}} = \frac{4}{8}$

   $\frac{4}{8} > \frac{3}{8}$

   $\frac{3}{8} \cdot \boxed{\frac{1}{1}} = \frac{3}{8}$

2. $\frac{4}{5}$ ⬤ $\frac{8}{10}$

3. $\frac{3}{4}$ ⬤ $\frac{7}{8}$

4. $\frac{1}{2}$ < $\frac{5}{9}$

   $\frac{1}{2} \cdot \boxed{\frac{9}{9}} = \frac{9}{18}$

   $\frac{9}{18} < \frac{10}{18}$

   $\frac{5}{9} \cdot \boxed{\frac{2}{2}} = \frac{10}{18}$

5. $\frac{9}{14}$ ⬤ $\frac{3}{7}$

6. $-\frac{5}{7}$ ⬤ $-\frac{6}{11}$

7. $-3\frac{1}{3}$ ⬤ $-3\frac{2}{6}$

8. $4\frac{9}{10}$ ⬤ $4\frac{3}{5}$

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Lesson 2 Skills Practice

Compare and Order Rational Numbers

Replace each ⬤ with <, >, or = to make a true sentence.

1. $\frac{4}{7}$ ⬤ $\frac{3}{5}$

2. $\frac{5}{12}$ ⬤ $\frac{7}{24}$

3. $\frac{6}{28}$ ⬤ $\frac{3}{7}$

7. $\frac{5}{12}$ ⬤ $\frac{7}{10}$

8. $\frac{15}{16}$ ⬤ $\frac{1}{4}$

9. $\frac{5}{8}$ ⬤ $\frac{3}{5}$

16. $1\frac{1}{7}$ ⬤ $\frac{8}{7}$

17. $3\frac{4}{7}$ ⬤ $3\frac{7}{8}$

18. $1\frac{2}{3}$ ⬤ $1\frac{3}{4}$

Order each set of numbers from least to greatest.

19. $0.48, 0.46, \frac{9}{20}$

20. $0.99, 0.89, \frac{7}{8}$

21. $\frac{1}{4}, 0.2, 0.4$