Compare Fractions

Essential Question How can you compare fractions?

🔑 Unlock the Problem Real World

Every year, Avery's school has a fair. This year, $\frac{3}{8}$ of the booths had face painting and $\frac{1}{4}$ of the booths had sand art. Were there more booths with face painting or sand art?

Compare $\frac{3}{8}$ and $\frac{1}{4}$.

🔓 One Way Use a common denominator.

When two fractions have the same denominator, they have equal-size parts. You can compare the number of parts.
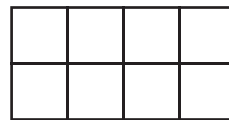
THINK

Think: 8 is a multiple of both 4 and 8. Use 8 as a common denominator.

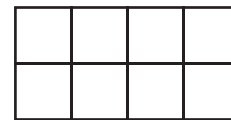$$\frac{1}{4} = \frac{1 \times }{4 \times } = \frac{}{8}$$

$\frac{3}{8}$ already has 8 as a denominator.

MODEL AND RECORD

Shade the model. Then compare.

$\frac{3}{8}$ ◯ $\frac{2}{8}$

🔓 Another Way Use a common numerator.

When two fractions have the same numerator, they represent the same number of parts. You can compare the size of the parts.
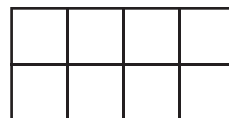
THINK

Think: 3 is a multiple of both 3 and 1. Use 3 as a common numerator.

$\frac{3}{8}$ already has 3 as a numerator.

$$\frac{1}{4} = \frac{1 \times }{4 \times } = \frac{3}{}$$

MODEL AND RECORD

Shade the model. Then compare.
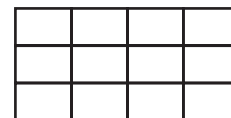
$\frac{3}{8}$ ◯ $\frac{3}{12}$

Since $\frac{3}{8}$ ◯ $\frac{1}{4}$, there were more booths with _____.

Math Talk

MATHEMATICAL PRACTICES ②

Reason Abstractly Why can you not use $\frac{1}{2}$ as a benchmark to compare $\frac{3}{8}$ and $\frac{1}{4}$?

Try This! **Compare the fractions. Explain your reasoning.**

A $\frac{3}{4}$ ◯ $\frac{1}{3}$

_____

_____

_____

_____

_____

_____

B $\frac{3}{5}$ ◯ $\frac{3}{8}$

_____

_____

_____

_____

_____

_____

C $\frac{3}{4}$ ◯ $\frac{7}{8}$

_____

_____

_____

_____

_____

_____

D $\frac{4}{5}$ ◯ $\frac{2}{3}$

_____

_____

_____

_____

_____

_____

1. Which would you use to compare $\frac{11}{12}$ and $\frac{5}{6}$, a common numerator or a common denominator? Explain.

_____

_____

2. Can you use simplest form to compare $\frac{8}{10}$ and $\frac{3}{5}$? Explain.

_____

_____

Name _____
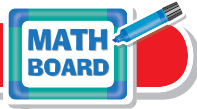
1. Compare $\frac{2}{5}$ and $\frac{1}{10}$.

Think: Use _____ as a common denominator.

$$\frac{2}{5} = \frac{\boxed{} \times \boxed{}}{\boxed{} \times \boxed{}} = \frac{\boxed{}}{\boxed{}}$$

$$\frac{1}{10}$$

Think: 4 tenth-size parts ◯ 1 tenth-size part.

$$\frac{2}{5} \bigcirc \frac{1}{10}$$

2. Compare $\frac{6}{10}$ and $\frac{3}{4}$.

Think: Use _____ as a common numerator.

$$\frac{6}{10}$$

$$\frac{3}{4} = \frac{\boxed{} \times \boxed{}}{\boxed{} \times \boxed{}} = \frac{\boxed{}}{\boxed{}}$$

Think: A tenth-size part ◯ an eighth-size part.

$$\frac{6}{10} \bigcirc \frac{3}{4}$$

Compare. Write <, >, or =.

☑ **3.** $\frac{7}{8} \bigcirc \frac{2}{8}$

☑ **4.** $\frac{5}{12} \bigcirc \frac{3}{6}$

5. $\frac{4}{10} \bigcirc \frac{4}{6}$

6. $\frac{6}{12} \bigcirc \frac{2}{4}$

Math Talk MATHEMATICAL PRACTICES ②

Use Reasoning How can using a common numerator or a common denominator help you compare fractions?

On Your Own

Compare. Write <, >, or =.

7. $\frac{1}{3} \bigcirc \frac{1}{4}$

8. $\frac{4}{5} \bigcirc \frac{8}{10}$

9. $\frac{3}{4} \bigcirc \frac{2}{6}$

10. $\frac{1}{2} \bigcirc \frac{5}{8}$

MATHEMATICAL PRACTICE ② **Reason Quantitatively** **Algebra** Find a number that makes the statement true.

11. $\frac{1}{2} > \frac{\boxed{}}{3}$

12. $\frac{3}{10} < \frac{\boxed{}}{5}$

13. $\frac{5}{12} < \frac{\boxed{}}{3}$

14. $\frac{2}{3} > \frac{4}{\boxed{}}$

15. GO DEEPER Students cut a pepperoni pizza into 12 equal slices and ate 5 slices. They cut a veggie pizza into 6 equal slices and ate 4 slices. Use fractions to compare the amounts of each pizza that were eaten.

_____

Unlock the Problem Real World

16. **THINK SMARTER** Jerry is making a strawberry smoothie. Which measure is greatest, the amount of milk, cottage cheese, or strawberries?

a. What do you need to find?

_____

b. How will you find the answer?

_____

_____

c. Show your work.

Strawberry Smoothie

3 ice cubes

$\frac{3}{4}$ cup milk

$\frac{2}{6}$ cup cottage cheese

$\frac{8}{12}$ cup strawberries

$\frac{1}{4}$ teaspoon vanilla

$\frac{1}{8}$ teaspoon sugar

d. Jerry needs more _____ than the other two ingredients.

17. **GO DEEPER** Angie, Blake, Carlos, and Daisy went running. Angie ran $\frac{1}{3}$ mile, Blake ran $\frac{3}{5}$ mile, Carlos ran $\frac{7}{10}$ mile, and Daisy ran $\frac{1}{2}$ mile. Which runner ran the shortest distance? Who ran the greatest distance?

_____

18. **THINK SMARTER** Elaine bought $\frac{5}{8}$ pound of potato salad and $\frac{4}{6}$ pound of macaroni salad for a picnic. Use the numbers to compare the amounts of potato salad and macaroni salad Elaine bought.

$$\frac{\boxed{}}{\boxed{}} < \frac{\boxed{}}{\boxed{}}$$

4

5

6

8

Name _____

Compare Fractions

Compare. Write <, >, or =.

1. $\frac{3}{4}$ $\lessgtr$ $\frac{5}{6}$

Think: 12 is a common denominator.

$\frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$

$\frac{5}{6} = \frac{5 \times 2}{6 \times 2} = \frac{10}{12}$

$\frac{9}{12} < \frac{10}{12}$

2. $\frac{1}{5}$ $\bigcirc$ $\frac{2}{10}$

3. $\frac{2}{4}$ $\bigcirc$ $\frac{2}{5}$

4. $\frac{3}{5}$ $\bigcirc$ $\frac{7}{10}$

5. $\frac{4}{12}$ $\bigcirc$ $\frac{1}{6}$

6. $\frac{2}{6}$ $\bigcirc$ $\frac{1}{3}$

7. $\frac{1}{3}$ $\bigcirc$ $\frac{2}{4}$

Problem Solving · Real World

8. A recipe uses $\frac{2}{3}$ cup of flour and $\frac{5}{8}$ cup of blueberries. Is there more flour or more blueberries in the recipe?

9. Peggy completed $\frac{5}{6}$ of the math homework and Al completed $\frac{4}{5}$ of the math homework. Did Peggy or Al complete more of the math homework?

_____

_____

10. **WRITE** ▶*Math* Give an example of fractions that you would compare by finding common denominators, and an example of fractions you would compare by finding common numerators.

_____

_____

Lesson Check

1. Pedro fills a glass $\frac{2}{4}$ full with orange juice. Write a fraction with a denominator of 6 that is greater than $\frac{2}{4}$.

_____

_____

2. Today Ian wants to run less than $\frac{7}{12}$ mile. Write a fraction with a denominator of 4 to respresent a distance that is less than $\frac{7}{12}$ mile.

_____

_____

Spiral Review

3. Ms. Davis traveled 372,645 miles last year on business. What is the value of 6 in 372,645?

_____

4. One section of an auditorium has 12 rows of seats. Each row has 13 seats. What is the total number of seats in that section?

_____

5. Sam has 12 black-and-white photos and 18 color photos. He wants to put the photos in equal rows so each row has either black-and-white photos only or color photos only. In how many rows can Sam arrange the photos?

_____

6. The teacher writes $\frac{10}{12}$ on the board. Write this fraction in simplest form.

_____

FOR MORE PRACTICE GO TO THE Personal Math Trainer