

Name _____

Compare Fractions

Essential Question How can you compare fractions?



Number and Operations—
Fractions—4.NF.A.2

MATHEMATICAL PRACTICES
MP2, MP4, MP6



Unlock the Problem



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

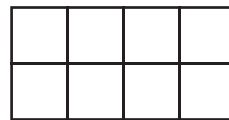
Think: 8 is a multiple of both 4 and 8.
Use 8 as a common denominator.

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

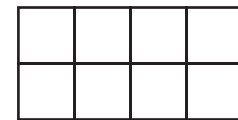
$\frac{3}{8}$ already has 8 as a denominator.

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

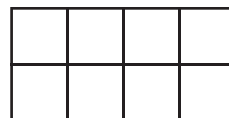
Think: 3 is a multiple of both 3 and 1.
Use 3 as a common numerator.

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

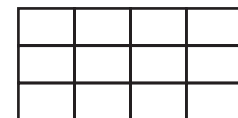
$\frac{3}{8}$ already has 3 as a numerator.

MODEL AND RECORD

Shade the model. Then compare.



$\frac{3}{8}$



$\frac{3}{12}$

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



MATHEMATICAL PRACTICES 2

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

Try This! Compare the fractions. Explain your reasoning.

A $\frac{3}{4}$ ○ $\frac{1}{3}$

B $\frac{3}{5}$ ○ $\frac{3}{8}$

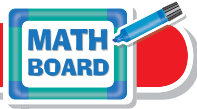
C $\frac{3}{4}$ ○ $\frac{7}{8}$

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.

Share and Show



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

Think: Use _____ as a common denominator.

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

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

Think: 4 tenth-size parts \bigcirc 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.

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

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

Think: A tenth-size part \bigcirc 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. $\frac{6}{12} \bigcirc \frac{2}{4}$

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



Reason Quantitatively Algebra Find a number that makes the statement true.

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

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

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

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

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.



MATHEMATICAL PRACTICES 2

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

Unlock the Problem

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.

	<		4
			5
			6
			8

Name _____

Compare Fractions



COMMON CORE STANDARD—4.NF.A.2
Extend understanding of fraction equivalence and ordering.

Compare. Write $<$, $>$, or $=$.

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

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

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

Think: 12 is a common denominator.

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

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

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

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



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 (4.NF.A.2)

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 represent a distance that is less than $\frac{7}{12}$ mile.

Spiral Review (4.OA.B.4, 4.NBT.A.1, 4.NBT.B.5, 4.NF.A.1)

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.

