# Compare Fractions

**R 3.3(H)** Compare two fractions having the same numerator or denominator in problems by reasoning about their sizes or justifying the conclusion using symbols, words, objects, or pictorial models.

## Understand the TEKS

The top number of a fraction is the **numerator**. It tells you how many parts you are counting. The bottom number of a fraction is the **denominator**. It tells you how many parts there are in all.

You can **compare** fractions. Comparing fractions shows which fraction is greater.

**Did You Know?**

**NUMBER SENSE**
If you are comparing fractions with the same denominator, look at the numerator. The fraction with the greater numerator is the greater fraction.

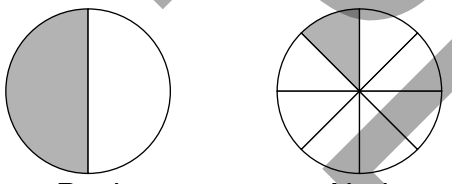
Models can show fractions of an object. You can use models to compare two or more fractions. Models of the same object must be the same size. The larger the shaded area, the greater the fraction.

Models can also help you compare fractions of **sets**. A set is a group of objects.

Paul has watched $\frac{1}{2}$ of the movie. Ned has watched $\frac{1}{8}$ of the movie. Who has watched more of the movie so far? How do you know?

**You can use models to compare fractions.**

**Step 1** Make a model to represent how much each boy has watched.



Paul Ned

**Step 2** Compare the sizes of the shaded parts of the models.

Which fraction is greater, $\frac{1}{2}$ or $\frac{1}{8}$? _____

Use $>$, $<$, or $=$ to compare. _____

**Step 3** Explain your answer.

_____

Who has watched more of the movie so far? _____

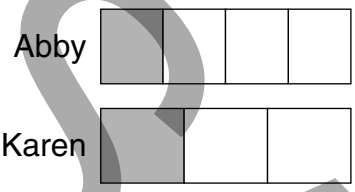


## ★ Practice

**DIRECTIONS Read each question. Then circle the letter for the correct answer.**

**1** Abby walks $\frac{1}{4}$ mile to the bus stop. Karen walks $\frac{1}{3}$ mile to the same bus stop.




Who lives closer to the bus stop? How do you know?

**A** Abby, because $\frac{1}{4} < \frac{1}{3}$

**B** Abby, because $\frac{1}{4} > \frac{1}{3}$

**C** Karen, because $\frac{1}{3} < \frac{1}{4}$

**D** Karen, because $\frac{1}{3} > \frac{1}{4}$

---

**2** Jeremy and Don have identical water bottles. After practice, Jeremy drinks $\frac{1}{3}$ of the water in his water bottle. Don drinks $\frac{2}{3}$ of his water. Who has more water left? Explain your answer.

**F** Jeremy, because 1 part is less than 2 parts

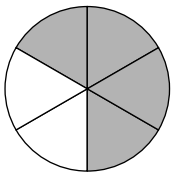
**G** Jeremy, because he drinks more

**H** Don, because 2 parts is greater than 1 part

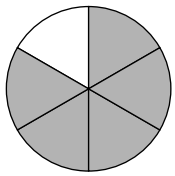
**J** Don, because he drinks more

**3** Ben and Charlie have the same number of baseball cards. Ben has $\frac{3}{6}$ of his cards in a book. Charlie has fewer cards in a book. The shaded part of which model could show the fraction of Charlie's cards that are in a book?

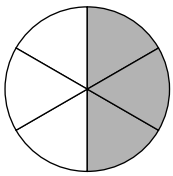
**A**



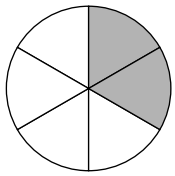
**C**



**B**



**D**



---

**4** Richie's name has 6 letters with 3 vowels. Aaron's name has 5 letters with 3 vowels. Which of the following statements is true?

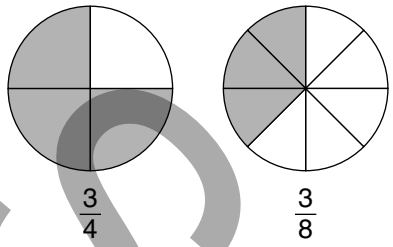
**F** The fraction of vowels in Aaron's name is less, because there are fewer letters in his name.

**G** The fraction of vowels in Richie's name is less, because there are more letters in his name.

**H** The fraction of vowels in Aaron's name is less, because there are more letters in his name.

**J** The fraction of vowels in the boys' names is the same, because they both have 3 vowels.

**5** Logan and Lori have the same number of baseball cards. Lori gave $\frac{3}{4}$ of her baseball cards to Sue. Logan gave $\frac{3}{8}$ of his baseball cards to Mark.




Who received more baseball cards? How do you know?

**A** Sue, because $\frac{3}{4} < \frac{3}{8}$

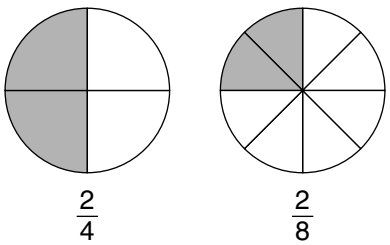
**B** Sue, because $\frac{3}{4} > \frac{3}{8}$

**C** Mark, because $\frac{3}{4} < \frac{3}{8}$

**D** Mark, because $\frac{3}{4} > \frac{3}{8}$

---

**6** Corey ate $\frac{2}{4}$ of his orange. Casey ate $\frac{2}{8}$ of his orange.




Who has more orange left? Explain your answer.

**F** Corey, because 2 parts of 8 is less than 2 parts of 4

**G** Corey, because 2 parts of 8 is more than 2 parts of 4

**H** Casey, because 2 parts of 8 is less than 2 parts of 4

**J** Casey, because 2 parts of 8 is more than 2 parts of 4

**7** Liam has to compare the fractions $\frac{2}{6}$ and $\frac{3}{6}$. He draws four models, which one is correct?

**A** $\boxed{\frac{1}{6}}\boxed{\frac{1}{6}} > \boxed{\frac{1}{6}}\boxed{\frac{1}{6}}\boxed{\frac{1}{6}}$

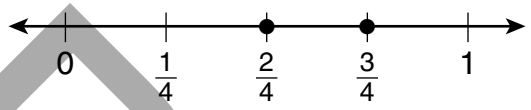
**B** $\boxed{\frac{1}{6}}\boxed{\frac{1}{6}}\boxed{\frac{1}{6}} > \boxed{\frac{1}{6}}\boxed{\frac{1}{6}}\boxed{\frac{1}{6}}\boxed{\frac{1}{6}}\boxed{\frac{1}{6}}$

**C** $\boxed{\frac{1}{6}} < \boxed{\frac{1}{6}}\boxed{\frac{1}{6}}$

**D** $\boxed{\frac{1}{6}}\boxed{\frac{1}{6}} < \boxed{\frac{1}{6}}\boxed{\frac{1}{6}}\boxed{\frac{1}{6}}$

---

**8** Jillian and Alan are painting two walls that are the same size. Jillian painted $\frac{2}{4}$ of her wall and Alan painted $\frac{3}{4}$ of his wall. Who painted the most?




**F** Jillian, because $\frac{2}{4} > \frac{3}{4}$

**G** Alan, because $\frac{3}{4} > \frac{2}{4}$

**H** Jillian, because $\frac{4}{2} < \frac{4}{3}$

**J** Alan, because $\frac{4}{2} > \frac{4}{3}$

---

**9** Recipe A uses $\frac{1}{2}$ cup of walnuts. Recipe B uses $\frac{1}{8}$ cup of walnuts. Which recipe uses the least walnuts?

**A** Recipe A, because $\frac{1}{2} > \frac{1}{8}$

**B** Recipe B, because $\frac{1}{8} > \frac{1}{2}$

**C** Recipe A, because $\frac{1}{2} < \frac{1}{8}$

**D** Recipe B, because $\frac{1}{8} < \frac{1}{2}$

# CRITICAL THINKING

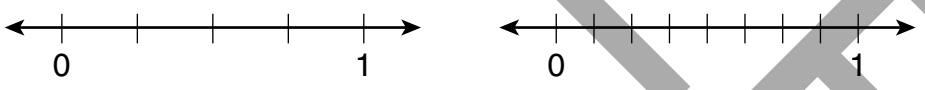
**Solve each problem.**

**1.** Caitlyn read $\frac{3}{6}$ of her book on Monday. On Tuesday, she read another $\frac{2}{6}$ of the book. Draw a model that shows how much of the book she has read. What fraction of the book has she read? What does the unshaded part of the strip show?

**2.** In a science lab, $\frac{2}{8}$ of the table is covered by tools. The sink covers $\frac{1}{8}$ of the table. What fraction of the table is **NOT** covered by tools or the sink? Explain how you know.

REAL-WORLD CONNECTION

**3.** Michael and Larry have boards of equal length. Michael divides his into 4 equal pieces. Larry divides his into 8 equal pieces. Complete a number line to model each board. On Michael's board, place a point at $\frac{3}{4}$. On Larry's board, place a point at $\frac{7}{8}$. Explain how you found the locations of the points when you drew on the number lines.




ELEVATE

**4.** Hannah says there are more ways to break apart $\frac{5}{6}$ than to break apart $\frac{5}{8}$. Is she correct? Explain how you know.


**5.** Emma and her friends had a lemonade stand. Emma made $4 from the lemonade stand. This is $\frac{1}{3}$ of the total amount made. The lemonade stand was open for 2 hours. The lemonade stand made the same amount each hour. How much did the lemonade stand make? How much was made each hour? Explain your answer.


**6.** Use objects in your classroom to find equivalent fractions. Work in a small group to gather 8 objects. Take turns describing the objects using fractions. For example, "$\frac{4}{8}$ of the crayons are broken." Work together to model the fraction. Then use the model to write an equivalent fraction. Repeat until everyone has had a turn to describe the objects.

**7.** Use the number line to show the distance of different landmarks from George's house. The park is $\frac{2}{4}$ mile from George's house. The cave is $\frac{1}{4}$ mile from his house. His grandmother lives 1 mile from his house. The tower is $\frac{1}{3}$ mile from his house. Show the location of the park, the cave, and his grandmother's house. Then, add a tick mark to show the tower on the number line. How do you know where the tower goes?