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Samples



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**MATHEMATICS**



Coach

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**MATHEMATICS**

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**GRADE 3**  
**LESSON 21 SAMPLE**



## Compare Unit Fractions

### Getting the Idea

You can use models and number lines to help you compare unit fractions. Unit fractions are fractions with a numerator of 1. Use these symbols when comparing fractions.

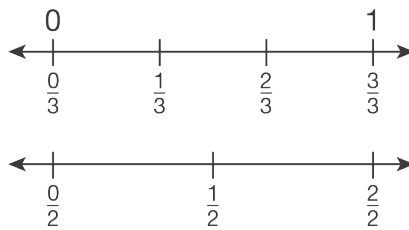
$>$  means **is greater than**.

$<$  means **is less than**.

$=$  means **is equal to**.

When you compare, it is important that the wholes are the same size.

For example,  $\frac{1}{3}$  is less than  $\frac{1}{2}$  as is shown on the number lines below.



However,  $\frac{1}{3}$  of a watermelon is a greater amount than  $\frac{1}{2}$  of an orange, because a watermelon is larger than an orange.

### Example 1

Which symbol makes this sentence true? Write  $<$ ,  $>$ , or  $=$ .

$$\frac{1}{4} \bigcirc \frac{1}{6}$$

**Strategy** Use fraction strips to compare  $\frac{1}{4}$  and  $\frac{1}{6}$ .

**Step 1** Show  $\frac{1}{4}$  and  $\frac{1}{6}$  with fraction strips.



**Step 2** Compare the fractions.

The wholes are the same size.

$\frac{1}{4}$  has 4 parts.  $\frac{1}{6}$  has 6 parts.

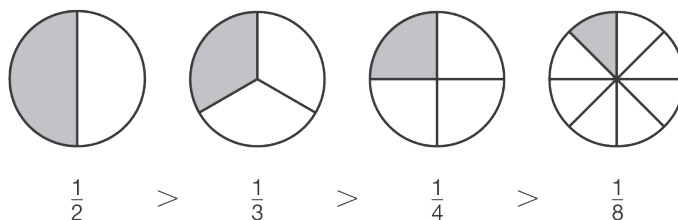
When a whole is divided into 6 parts, the parts are smaller than when a whole is divided into 4 parts.

So,  $\frac{1}{4}$  is greater than  $\frac{1}{6}$ .

**Solution**  $\frac{1}{4} > \frac{1}{6}$

When you compare unit fractions, the fraction with the smaller denominator is the larger fraction. In Example 1, 4 is smaller than 6, so  $\frac{1}{4}$  is greater than  $\frac{1}{6}$ .

As the number of equal parts (the denominator) increases, the size of each part decreases.



**Example 2**

Which symbol makes this sentence true? Write  $>$ ,  $<$ , or  $=$ .

$$\frac{1}{3} \bigcirc \frac{1}{8}$$

**Strategy** Compare the denominators.

**Step 1** The numerators are the same.

**Step 2** Compare the denominators.

$$3 < 8$$

The lesser denominator is the greater fraction.

$\frac{1}{3}$  is the greater fraction.

**Step 3** Choose the correct symbol.

$>$  means is greater than.

**Solution**  $\frac{1}{3} \bigcirc \frac{1}{8}$

**Example 3**

Ted read  $\frac{1}{4}$  of his book. Lisa read  $\frac{1}{3}$  of the same book. Who read the greater amount of the book?

**Strategy** Compare the denominators.

**Step 1** Both of the numerators are 1.

**Step 2** Compare the denominators.

$$4 > 3$$

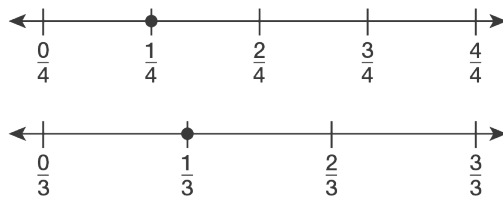
The fraction with the lesser denominator is the greater fraction.

$$\frac{1}{3} > \frac{1}{4}$$

**Solution** Lisa read more of the book.



Here are the fractions from Example 3 on number lines.



The fraction farther to the right is the greater fraction.

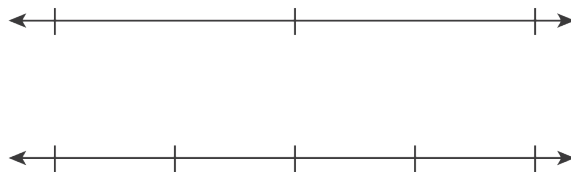
The fraction farther to the left is the lesser fraction.

### Coached Example

**Callie drew a circle. Callie shaded  $\frac{1}{2}$  of the circle. Will shaded  $\frac{1}{4}$  of the circle. Who shaded more of the circle?**

Draw number lines divided into halves and fourths.

Draw points at  $\frac{1}{2}$  and  $\frac{1}{4}$  on the number lines.



Compare the fractions.

The fraction farther to the right is the \_\_\_\_\_ fraction.

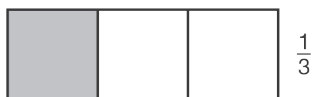
So, \_\_\_\_\_ > \_\_\_\_\_.

\_\_\_\_\_ shaded more of the circle than \_\_\_\_\_.

## Lesson Practice • Part 1

Choose the correct answer.

1. Look at the two fractions below.



Which sentence is true?

- A.  $\frac{1}{3} = \frac{1}{2}$   
 B.  $\frac{1}{3} > \frac{1}{2}$   
 C.  $\frac{1}{2} < \frac{1}{3}$   
 D.  $\frac{1}{2} > \frac{1}{3}$
2. Which symbol belongs in the  $\bigcirc$  to make the sentence true?

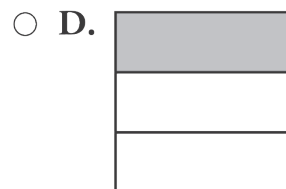
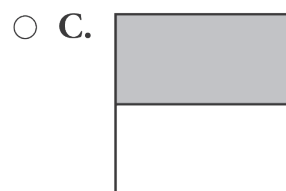
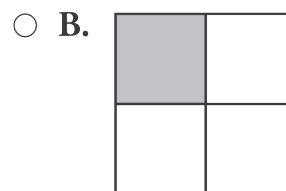
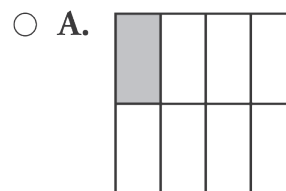
$$\frac{1}{5} \bigcirc \frac{1}{6}$$

- A.  $>$   
 B.  $<$   
 C.  $=$   
 D.  $+$

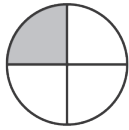
3. Which is the least fraction?

- A.  $\frac{1}{8}$   
 B.  $\frac{1}{2}$   
 C.  $\frac{1}{5}$   
 D.  $\frac{1}{3}$

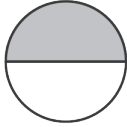
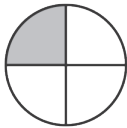


4. Which is the greatest fraction?



5. The circle below is  $\frac{1}{4}$  shaded.

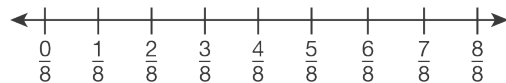
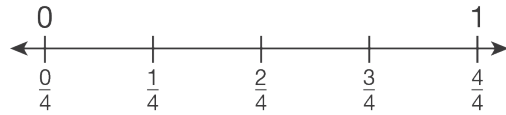


Which circle has less than  $\frac{1}{4}$  shaded?

- A. 
- B. 
- C. 
- D. 

6. Which symbol belongs in the  $\bigcirc$  to make the sentence true?

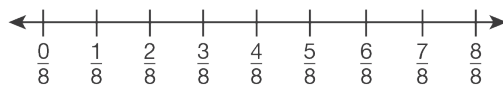
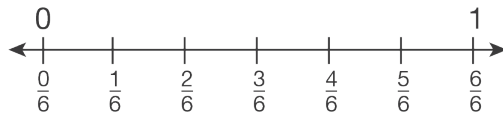
$$\frac{1}{4} \bigcirc \frac{1}{8}$$



- A.  $>$
- B.  $<$
- C.  $=$
- D.  $+$

7. Brenda has read  $\frac{1}{6}$  of a book. Sylvia has read  $\frac{1}{8}$  of the same book.

- A. Circle  $\frac{1}{6}$  and  $\frac{1}{8}$  on the number lines below.



- B. Who has read more of the book? Explain your answer.

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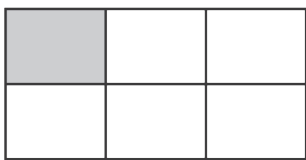
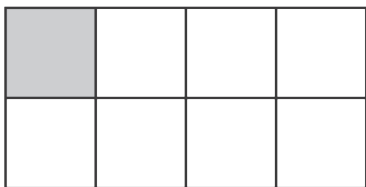
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## Lesson Practice • Part 2

Choose the correct answer.

- Which fraction is less than  $\frac{1}{4}$ ?
  - A.  $\frac{1}{3}$
  - B.  $\frac{1}{2}$
  - C.  $\frac{2}{4}$
  - D.  $\frac{1}{6}$
- John watched  $\frac{1}{2}$  of a movie. Maria watched  $\frac{1}{2}$  of a different movie. Which sentence is true?
  - A. John watched for a longer period of time than Maria.
  - B. Maria watched for a longer period of time than John.
  - C. They watched for the same amount of time.
  - D. There is not enough information to know who watched longer.
- Which sentence is true?
  - A.  $\frac{1}{2} > \frac{1}{5}$
  - B.  $\frac{1}{2} = \frac{1}{3}$
  - C.  $\frac{1}{4} > \frac{1}{3}$
  - D.  $\frac{1}{4} < \frac{1}{5}$

- Which shows a fraction greater than  $\frac{1}{3}$ ?
  - A. 
  - B. 
  - C. 
  - D. 

- Choose the number that makes this sentence true.

$$\frac{1}{6} > \frac{1}{\square}$$

- A. 8
- B. 6
- C. 4
- D. 3

6. Which symbol belongs in the  $\bigcirc$  to make the sentence true?

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

- A.  $>$
- B.  $<$
- C.  $=$
- D.  $+$

7. April read  $\frac{1}{3}$  of a book. Kan read  $\frac{1}{3}$  of the same copy of the book.

Which sentence is true?

- A. April read a greater number of pages than Kan.
- B. Kan read a greater number of pages than April.
- C. They read the same number of pages.
- D. There is not enough information to know who read more pages.

8. Three friends are saving for vacation. They each want to save an equal amount of money. Ana saved  $\frac{1}{3}$ , Beth saved  $\frac{1}{6}$ , and Carla saved  $\frac{1}{2}$ .

- A. Did Ana or Beth save more money? Explain your answer.

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- B. Did Beth or Carla save more money? Explain your answer.

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- C. Did Ana or Carla save more money? Explain your answer.

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Mathematics

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**3**



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**GRADE 3**  
**PRACTICE TEST SAMPLES**



43. The picture below shows that  $\frac{4}{8}$  of Libby's marbles are white.



Which fraction is equivalent to the fraction of marbles that are white?

- (A)  $\frac{2}{4}$
- (B)  $\frac{4}{1}$
- (C)  $\frac{4}{2}$
- (D)  $\frac{4}{4}$

44. Which expression does NOT have the same value as  $132 + 216 + 109$ ?

- (A)  $348 + 109$
- (B)  $132 + 325$
- (C)  $109 + 216 + 132$
- (D)  $216 + 231$

45. Stanley has 3 bags of marbles. There are 9 marbles in each bag.

**Part A**

Create an equation that shows how many marbles Stanley has in all.

Write your answer in the box below.

**Part B**

How many marbles does Stanley have all together?

- Ⓐ 3
- Ⓑ 6
- Ⓒ 12
- Ⓓ 27

46. A museum has 36 dinosaur bones displayed in 4 cases.

Each case has the same number of bones in it.

The equation below can be used to find how many dinosaur bones are in each case.

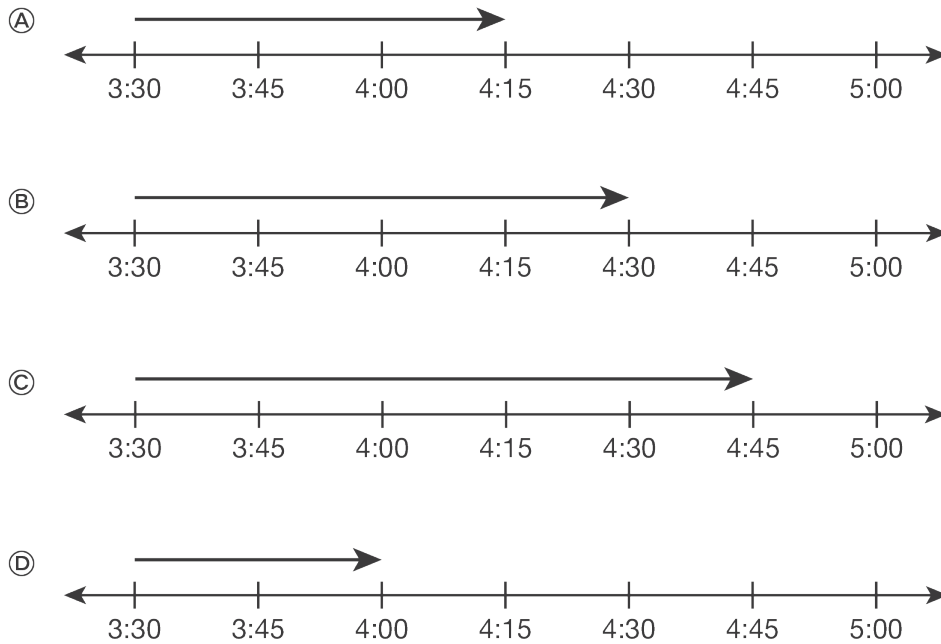
$$36 \div \square = 4$$

How many dinosaur bones are in each case?

- Ⓐ 9
- Ⓑ 32
- Ⓒ 40
- Ⓓ 144



47. Greg starts his homework at 3:30. It takes a half hour to finish his homework. Which number line shows the time he finishes his homework?



48. Keegan draws three figures.

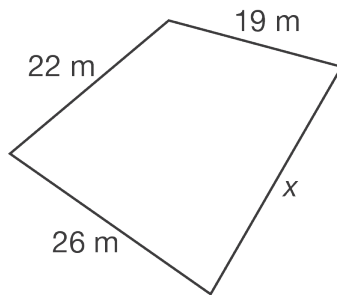


Which name describes ALL of these figures?

- (A) rhombus  
(B) quadrilateral  
(C) square  
(D) rectangle



49. The perimeter of this polygon is 98 meters.



**Part A**

What is the length of side  $x$ ?

- Ⓐ 22 m
- Ⓑ 31 m
- Ⓒ 45 m
- Ⓓ 48 m

**Part B**

Which statement **BEST** explains how to solve for the length of side  $x$ ?

- Ⓐ Add all the side lengths to get the length of side  $x$ .
- Ⓑ Add the length of the sides adjacent to side  $x$ .
- Ⓒ Start with the perimeter and subtract all the known lengths to get the length of side  $x$ .
- Ⓓ Start with the perimeter and add all the known lengths to get the length of side  $x$ .

**GO ON** 

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MATHEMATICS

GRADES  
3-8

