MY Homework

Homework Helper

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Franny wants to braid string to make a bracelet. She has one long piece of string. Franny needs to divide the string into 3 equal pieces for braiding. Model the whole string divided into 3 pieces. Write the unit fraction for 1 piece of the string.

1 Use the one whole fraction tile to represent the whole piece of string.

1

$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$

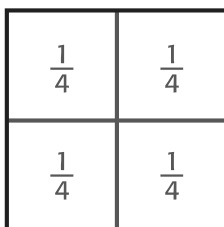**2** Use $\frac{1}{3}$-fraction tiles to model 3 equal parts.

3 The string was divided into 3 equal pieces. The unit fraction that represents 1 of those pieces is $\frac{1}{3}$.
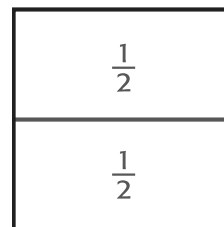
Practice Sample divisions: 1–4

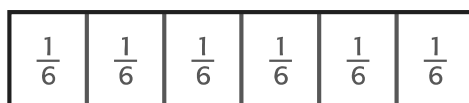**Divide the whole into equal parts. Then label each part with its unit fraction.**
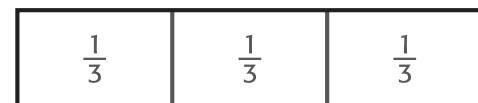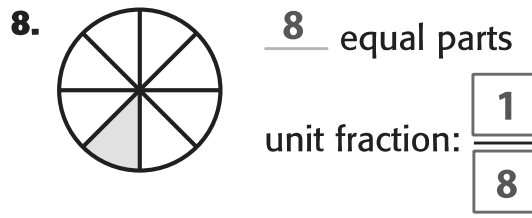
1. four equal parts

$\frac{1}{4}$	$\frac{1}{4}$
$\frac{1}{4}$	$\frac{1}{4}$

2. two equal parts

$\frac{1}{2}$
$\frac{1}{2}$

3. six equal parts

$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

4. three equal parts

$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$

Write how many equal parts. Shade one part. Write its unit fraction.

5. ____6____ equal parts

unit fraction: $\dfrac{1}{6}$

6. ____2____ equal parts

unit fraction: $\dfrac{1}{2}$

7. ____4____ equal parts

unit fraction: $\dfrac{1}{4}$

8. ____8____ equal parts

unit fraction: $\dfrac{1}{8}$
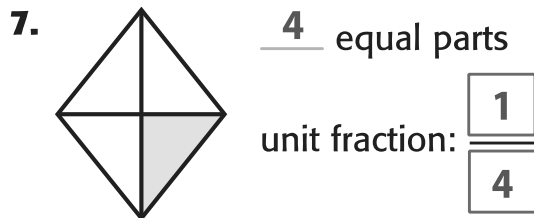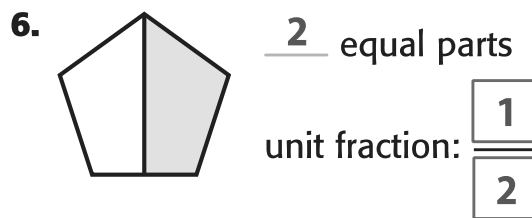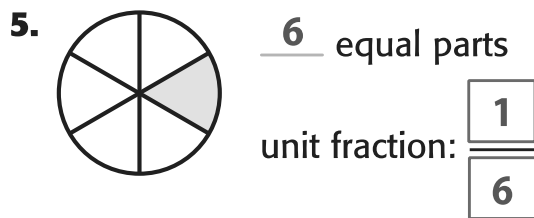
Problem Solving

9. Mathematical PRACTICE 3 Justify Conclusions Louis has a rectangular piece of construction paper. Can he divide the shape into 4 equal parts? Explain.

__Yes; Sample answer: he can fold it in half, and then fold it in half__

__one more time. Each part will be one-fourth of the whole rectangle.__

Vocabulary Check

Choose the correct word(s) to complete each sentence.

fraction   unit fraction

10. A _____unit fraction_____ is exactly one equal part of a whole.

11. A _____fraction_____ represents an equal part of a whole.

Test Practice

12. Which unit fraction represents the shaded part of the whole?

Ⓐ $\dfrac{1}{3}$

Ⓒ $\dfrac{1}{6}$

Ⓑ $\dfrac{1}{4}$

Ⓓ $\dfrac{1}{8}$

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Dennis and 2 friends are sharing a submarine sandwich equally. All but one part has hot peppers. What fraction of the sandwich has hot peppers? What fraction of the sandwich does not have hot peppers?

Model the problem. The entire sandwich is the whole. It is divided into 3 equal parts. Two of the 3 parts have hot peppers.

parts with hot peppers $\longrightarrow$ $\dfrac{2}{3}$ $\dfrac{1}{3}$ $\longleftarrow$ part without hot peppers
total number of equal parts $\longrightarrow$ $\longleftarrow$ total number of equal parts

So, $\dfrac{2}{3}$ of the sandwich has hot peppers, and $\dfrac{1}{3}$ of the sandwich does not.
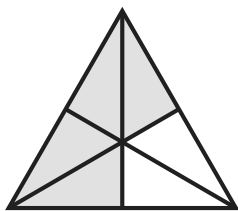
Practice
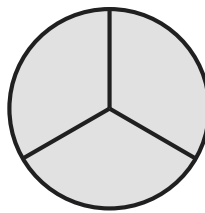
Complete the chart. Write a fraction for each part.

Fraction Model	Part that is Green	Part that is *not Green*
1.	$\dfrac{2}{6}$	$\dfrac{4}{6}$
2.	$\dfrac{3}{4}$	$\dfrac{1}{4}$

Shade each figure to represent the fraction.

3. $\frac{4}{6}$

4. $\frac{3}{3}$

5. $\frac{5}{8}$

6. $\left(\frac{1}{4}\right)$
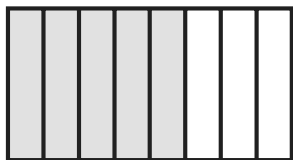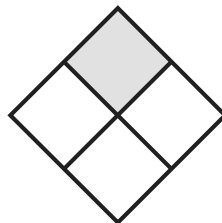
7. **Mathematical** **PRACTICE** ② **Stop and Reflect** In Exercises 3–6, circle the unit fraction. Write the fraction below. Explain why it is a unit fraction.

$\frac{1}{4}$ **is a unit fraction because it names 1 part of a whole.**

Problem Solving

8. A loaf of bread is cut into 8 equal slices. What fraction of the bread is left after 6 slices have been used for sandwiches?

$\frac{2}{8}$

9. Kristen made a pinwheel with 6 points. She colored 1 point red, 2 points blue, and 3 points purple. What fraction of the points are neither red nor purple?
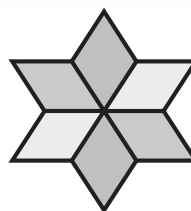
$\frac{2}{6}$

Vocabulary Check

Draw a line to match the vocabulary term with its meaning.

10. denominator — the number of parts being represented

11. numerator — the total number of equal parts

Test Practice

12. Which fraction of the figure is yellow?

Ⓐ $\frac{2}{8}$ Ⓑ $\frac{2}{6}$ Ⓒ $\frac{1}{2}$ Ⓓ $\frac{3}{6}$

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Carolyn has put together gift bags for guests at her party. There are 6 bags in all. What fraction of the set of bags is yellow? What fraction of the set of bags is blue?

The total number of bags is 6. This is the denominator. The numerator for each fractional part is the number of yellow bags and the number of blue bags.

$\dfrac{4}{6}$ ← yellow bags
← total number of bags

$\dfrac{2}{6}$ ← blue bags
← total number of bags

So, $\dfrac{4}{6}$ of the gift bags are yellow, and $\dfrac{2}{6}$ of the gift bags are blue.

Practice

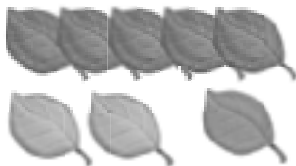**Shade each set to represent the fraction.**

1. $\dfrac{3}{4}$ ◯ ◯ ◯ ◯

2. $\dfrac{4}{6}$ ◯ ◯ ◯ ◯ ◯ ◯

3. $\dfrac{2}{3}$ ◯ ◯ ◯

4. $\dfrac{1}{2}$ ◯ ◯

5. Write a fraction for each part.

$\dfrac{5}{8}$ part that is red

$\dfrac{3}{8}$ part that is *not* red

6. What fraction of the set of balloons is green?

$\dfrac{1}{3}$

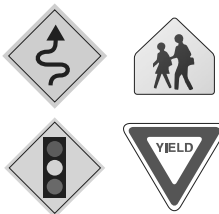**7.** What fraction of the set of books is blue?

$\dfrac{3}{6}$

8. What fraction of the set of bees is flying away?

$\dfrac{3}{8}$

9. What fraction of the set of signs is square?

$\dfrac{2}{4}$

Problem Solving

10. Ramona writes each letter of her first name on separate index cards. What fraction of the cards has a vowel?

$\dfrac{3}{6}$

11. **Mathematical PRACTICE 1** **Keep Trying** Bryan has 3 nickels, 3 dimes, and 2 quarters. What fraction of the coins is either a dime or a quarter?

$\dfrac{5}{8}$

12. The Morse family went shoe shopping. Harry got a pair of rain boots and a pair of tennis shoes. Kate got a pair of tennis shoes and a pair of sandals. What fraction of the set of new shoes is rain boots?

$\dfrac{1}{4}$

Test Practice

13. What fraction of the birds are on the window sill?

Ⓐ $\dfrac{1}{2}$ Ⓒ $\dfrac{4}{8}$

Ⓑ $\dfrac{3}{8}$ Ⓓ $\dfrac{5}{8}$

MY Homework

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**Alisha is making a bracelet with 4 beads and 4 silver charms.
Two of the beads are blue. The rest of the beads are green.
What fraction of the bracelet is made up of green beads?**

1 Understand

What facts do you know?

Alisha has 4 beads and 4 charms.

Two of the beads are blue.

What do you need to find?

the fraction of the bracelet that is made up of green beads

2 Plan

Draw a diagram to solve the problem.

3 Solve

First, draw a figure divided into 8 equal parts.

Mark 4 of the parts S for silver charms.

Mark 2 of the parts B for blue beads.

S	S	B	B
S	S		

There are 2 parts not filled. Two parts out of 8 parts is $\frac{2}{8}$.

So, the green beads are $\frac{2}{8}$ of the bracelet.

4 Check

Does the answer make sense?

Yes. 4 silver charms + 2 blue beads + 2 green beads = 8 parts.

Problem Solving 1–5. See students' diagrams.

Solve each problem by drawing a diagram.

1. Dalton ate 6 pieces of fruit on Monday. He ate 2 apples, 1 banana, 1 orange, and some apricots. What fraction of the fruit Dylan ate was apricots?

   $\dfrac{2}{6}$

2. The Johnsons have 3 dogs. Two of the dogs have brown spots. The other dog has black spots. What fraction of the dogs has black spots?

   $\dfrac{1}{3}$

3. **Mathematical PRACTICE 4 Model Math** Hannah has 6 cups. She wants to divide them evenly between 2 shelves. How many cups will Hannah put on each shelf?

   3 cups

4. Kenley collects stuffed animals. She has eight stuffed animals. One animal is a bear. What fraction of her stuffed animals is *not* a bear?

   $\dfrac{7}{8}$

5. **Mathematical PRACTICE 2 Reason** Finn walks 1 mile to the grocery store. When he is halfway back home from the store, a friend picks him up and drives him the rest of the way. What fraction of Finn's round-trip to the grocery store did he *not* walk?
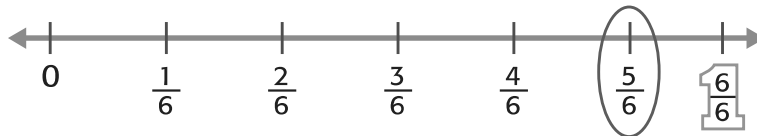
   $\dfrac{1}{4}$

My Work!

SPOT

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Hailey bought 6 apples. One apple is green and the rest are red. Label the fraction on the number line which represents the part of the apples that are red.

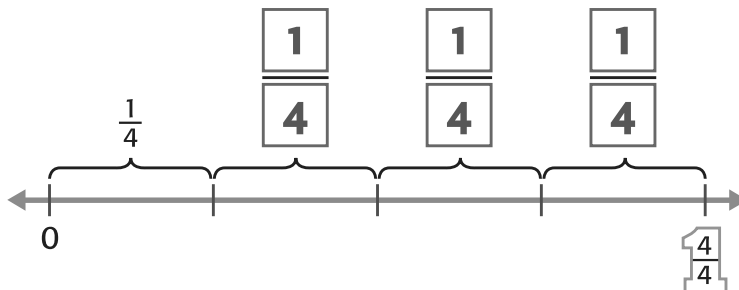There are a total of 6 apples. So, the number line is divided into 6 parts.

$$0 \qquad \frac{1}{6} \qquad \frac{2}{6} \qquad \frac{3}{6} \qquad \frac{4}{6} \qquad \boxed{\frac{5}{6}} \qquad \frac{6}{6}$$

If 1 out of 6 apples is green, and the rest are red, then there are

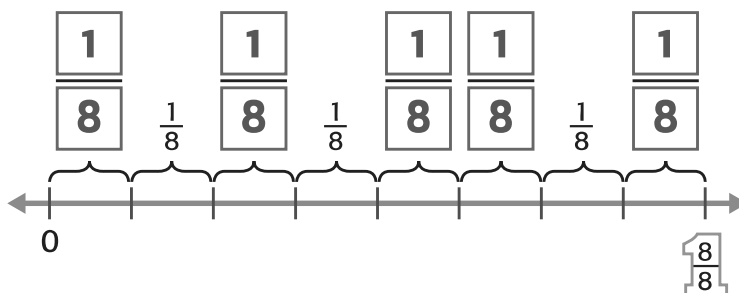5 red apples. The fraction that represents the red apples is $\frac{5}{6}$.

Practice

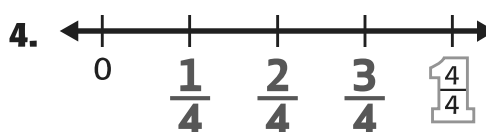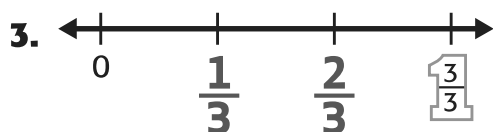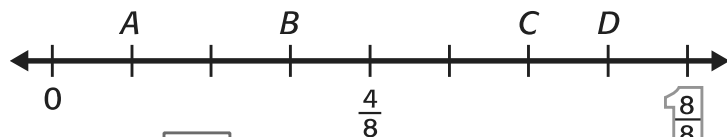**Label each unknown with the fraction of the whole it represents.**

1.

2.

Label the fractions between 0 and 1 on the number lines.

3.

0    $\frac{1}{3}$ $\frac{2}{3}$ $\boxed{\frac{3}{3}}$

4.

0    $\frac{1}{4}$ $\frac{2}{4}$ $\frac{3}{4}$ $\boxed{\frac{4}{4}}$

Write the fraction that is represented by each point.

A   B   C   D

0                $\frac{4}{8}$ $\boxed{\frac{8}{8}}$

5. Point A is $\dfrac{\boxed{1}}{\boxed{8}}$.

6. Point D is $\dfrac{\boxed{7}}{\boxed{8}}$.

7. Point C is $\dfrac{\boxed{6}}{\boxed{8}}$.

8. Point B is $\dfrac{\boxed{3}}{\boxed{8}}$.

Real World Problem Solving

9. **Mathematical PRACTICE ⑤ Use Math Tools** Jamal spent $\frac{3}{4}$ of his allowance. On the number line, label the fraction that represents the part that Jamal spent.

0                        $\frac{3}{4}$ $\boxed{\frac{4}{4}}$

10. Eric and Rachel have a total of 6 coins. One coin is a nickel, one is a dime, and the rest are quarters. On the number line, label the fraction that represents the part of the coins that are quarters.

0                        $\frac{4}{6}$ $\boxed{\frac{6}{6}}$
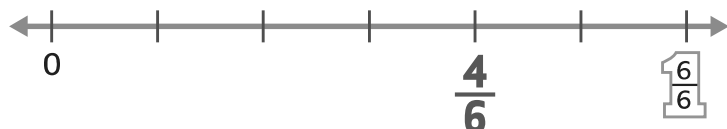
11. Elaine has read 3 pages in her book. She needs to read 5 more pages. Partition the number line below into eighths. Label the fraction that represents the fraction of pages Elaine has read. Then label the fraction that represents the part of the pages Elaine still needs to read.

0              $\frac{3}{8}$ $\frac{5}{8}$ $\boxed{\frac{8}{8}}$

pages read → $\frac{3}{8}$ $\frac{5}{8}$ **← pages to read**
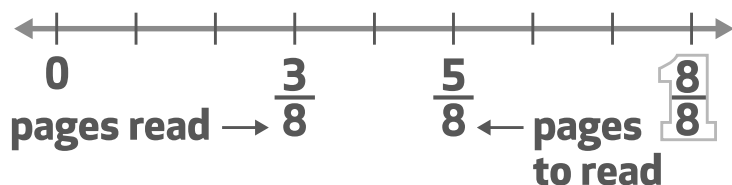
MY Homework

Lesson 6

Equivalent Fractions

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Marley packed 2 of the 4 apricots her mom just bought for her lunch. Find an equivalent fraction to represent the part of the apricots that Marley just packed.
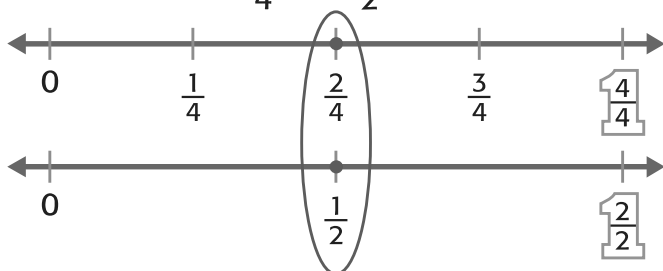
1 Represent the fraction on a number line.
Divide a number line into four equal parts. Mark the fraction.

$$0 \qquad \frac{1}{4} \qquad \frac{2}{4} \qquad \frac{3}{4} \qquad \frac{4}{4}$$
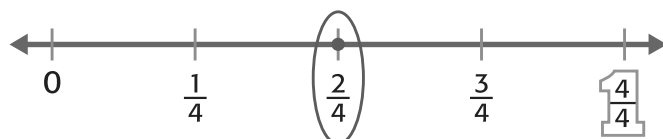
2 Find an equivalent fraction.
Draw another number line of equal length. Equally divide this number line another way. $\frac{2}{4}$ and $\frac{1}{2}$ name the same point.
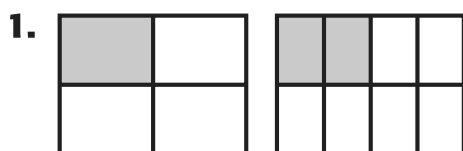
$$0 \qquad \frac{1}{4} \qquad \frac{2}{4} \qquad \frac{3}{4} \qquad \frac{4}{4}$$

$$0 \qquad \frac{1}{2} \qquad \frac{2}{2}$$

The number lines show that $\frac{2}{4}$ names the same point as $\frac{1}{2}$.

So, $\frac{2}{4}$ and $\frac{1}{2}$ are equivalent fractions.

Practice

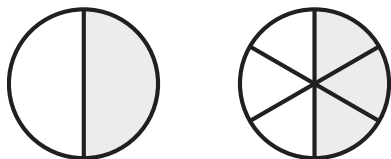**Complete each number sentence to show equivalent fractions.**

1.

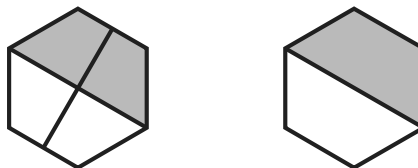$$\frac{1}{4} = \frac{2}{8}$$

2.

$$\frac{4}{6} = \frac{2}{3}$$

Complete each number sentence to show equivalent fractions.

3.

$$\frac{1}{2} = \frac{3}{6}$$

4.

$$\frac{2}{4} = \frac{1}{2}$$

Problem Solving

5. Hiroshi made 6 puppets. Two of the puppets were dogs, two were cats, and two were birds. Circle the equivalent fractions that represent the part of the puppets that were cats.

$$\frac{1}{2} \qquad \boxed{\frac{1}{3}} \qquad \frac{2}{4} \qquad \boxed{\frac{2}{6}}$$

6. **Mathematical** **PRACTICE** 2 **Use Number Sense** A rosebush had 8 blossoms. Two of the blossoms withered and fell off. Circle the equivalent fractions which represent the part of the blossoms still on the bush.
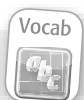
$$\frac{2}{8} \qquad \frac{7}{8} \qquad \boxed{\frac{3}{4}} \qquad \boxed{\frac{6}{8}}$$

Vocabulary Check [Vocab]

7. Write a definition for equivalent fractions. Then give an example.

Sample answer: Equivalent fractions name the same part

of a whole. Example: $\frac{2}{4}$ and $\frac{4}{8}$

Test Practice

8. Which of the following are *not* equivalent fractions?

Ⓐ $\frac{2}{6}$ and $\frac{1}{3}$

Ⓒ $\frac{1}{4}$ and $\frac{2}{8}$

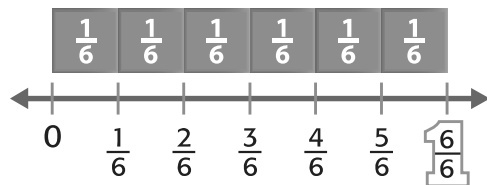Ⓑ $\frac{2}{3}$ and $\frac{4}{6}$

Ⓓ $\frac{1}{2}$ and $\frac{3}{8}$

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How many sixths equal 1 whole? Write the fraction.

The number line shows one whole partitioned into six equal parts. Six $\frac{1}{6}$-fraction tiles are placed above the number line.

$$\frac{1}{6} \quad \frac{1}{6} \quad \frac{1}{6} \quad \frac{1}{6} \quad \frac{1}{6} \quad \frac{1}{6}$$

$$0 \quad \frac{1}{6} \quad \frac{2}{6} \quad \frac{3}{6} \quad \frac{4}{6} \quad \frac{5}{6} \quad \frac{6}{6}$$

Each $\frac{1}{6}$-fraction tile represents *one-sixth*.

So, *six-sixths* is equivalent to one whole.

Write the fraction.

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

← six parts

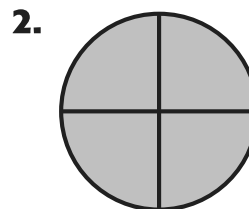← One whole is partitioned into six parts.

Practice

Write a fraction to represent the shaded part of each whole.

1.

$$\frac{8}{8}$$

2.

$$\frac{4}{4}$$

Write a fraction to represent each set of wholes.

3.

$$\frac{3}{1}$$

4.

$$\frac{2}{1}$$

Write each whole number as a fraction.

5. $8 = \dfrac{8}{1}$

6. $4 = \dfrac{4}{1}$
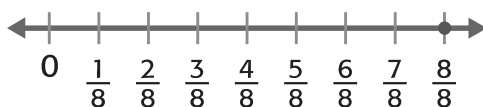
7. $2 = \dfrac{2}{1}$

8. $6 = \dfrac{6}{1}$

Problem Solving

9. Gary sliced an apple into eighths. He gave eight of the pieces to his friends. Write a fraction that represents the part of the apple that was given to his friends. Then write this fraction as a whole number. Graph the fraction on the number line.

$$\frac{8}{8} = \underline{1}$$

$$0 \quad \frac{1}{8} \quad \frac{2}{8} \quad \frac{3}{8} \quad \frac{4}{8} \quad \frac{5}{8} \quad \frac{6}{8} \quad \frac{7}{8} \quad \frac{8}{8}$$

Mathematical
10. PRACTICE 2 Use Number Sense The art teacher partitioned a piece of poster paper into three equal pieces. Each part was decorated for a school dance. Write a fraction that represents the part of the poster paper that was decorated for the school dance. Then write this fraction as a whole number.

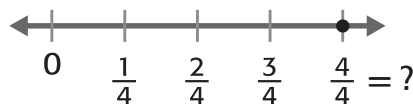$$\frac{3}{3} = \underline{1}$$

Test Practice

11. Which of the following is equivalent to $\dfrac{4}{4}$?
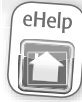
Ⓐ $\dfrac{1}{4}$

Ⓒ $\dfrac{4}{1}$

Ⓑ 1

Ⓓ 4

$$0 \quad \frac{1}{4} \quad \frac{2}{4} \quad \frac{3}{4} \quad \frac{4}{4} = ?$$

MY Homework →

Lesson 8

Compare Fractions

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Luis and Malcolm are both on the tennis team. Luis has won $\frac{1}{2}$ of his matches. Malcolm has won $\frac{1}{6}$ of his matches. They both played the same number of matches. Who has won the greater fraction of matches?

Compare $\frac{1}{2}$ and $\frac{1}{6}$.

Luis

$$\frac{1}{2}$$

0    $\frac{1}{2}$ 1
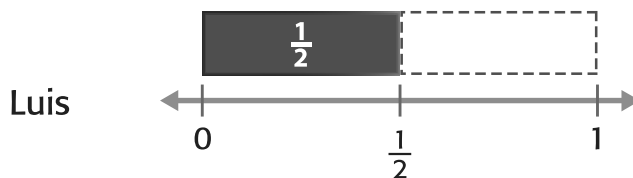
The smaller denominator of 2 means fewer, but larger parts.

Malcolm

$$\frac{1}{6}$$

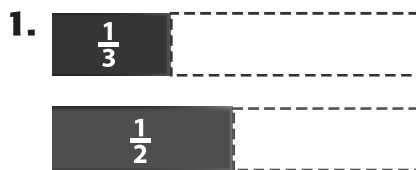0 $\frac{1}{6}$ $\frac{2}{6}$ $\frac{3}{6}$ $\frac{4}{6}$ $\frac{5}{6}$ $\frac{6}{6}$
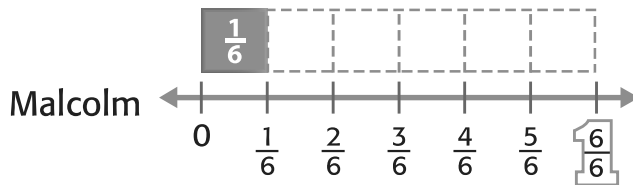
The larger denominator of 6 means more, but smaller parts.

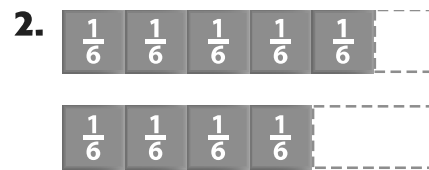The models show that $\frac{1}{2}$ has a greater size than $\frac{1}{6}$.

So, $\frac{1}{2} > \frac{1}{6}$. Luis won a greater fraction of matches.
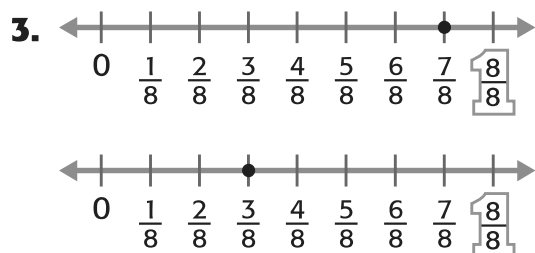
Practice

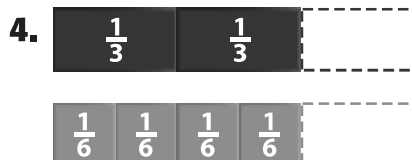Use the models to compare. Use >, <, or =.

1.

$$\frac{1}{3}$$

$$\frac{1}{2}$$

$$\frac{1}{3} \; \text{<} \; \frac{1}{2}$$

2.

| $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ |

| $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ | $\frac{1}{6}$ |

$$\frac{5}{6} \; \text{>} \; \frac{4}{6}$$

Use the models to compare. Use >, <, or =.

3.

$$\frac{7}{8} \bigcirc{>} \frac{3}{8}$$

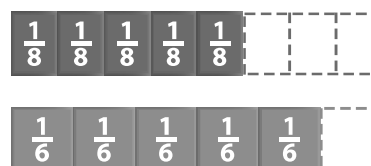**4.**

$$\frac{2}{3} \bigcirc{=} \frac{4}{6}$$

Problem Solving

5. **Mathematical PRACTICE ③ Justify Conclusions** Harvey practiced the piano for $\frac{5}{8}$ of an hour. Annika practiced the piano for $\frac{5}{6}$ of an hour. Use the models to determine who practiced the piano for a longer period of time.

Annika practiced the piano longer.

6. **Mathematical PRACTICE ⑤ Use Math Tools** The average housecat sleeps about $\frac{2}{3}$ of a day. Most people sleep about $\frac{1}{3}$ of the day. Do housecats or people sleep for a greater fraction of the day? Graph both fractions on the number line to compare.
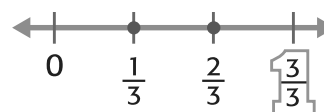
Housecats sleep for a greater fraction of the day.

Test Practice

7. The number line shows which of the following fractions is less than $\frac{2}{4}$?

(A) $\frac{1}{4}$

(C) $\frac{3}{4}$

(B) $\frac{2}{4}$

(D) $\frac{4}{4}$