



# Find Equivalent Fractions

## Use What You Know

In Lesson 16, you learned that equivalent fractions name the same amount of the whole. In this lesson you will learn more about finding equivalent fractions. Take a look at this problem.

Izzy's mom baked a cake. She put chocolate frosting on half of the cake and vanilla frosting on half of the cake.



Then Izzy's mom cut the cake into fourths. What fraction other than  $\frac{1}{2}$  names the part of the cake that has chocolate frosting?

- Look at the picture above. What fraction of the cake has chocolate frosting?  
\_\_\_\_\_
- How many equal parts should the cake be divided into to show fourths? \_\_\_\_\_
- On the picture above, draw lines to divide the cake into fourths. Each fourth should have all chocolate or all vanilla frosting.
- How many fourths of the cake have chocolate frosting? \_\_\_\_\_
- Did the amount of cake with chocolate frosting change? Explain how you know that  $\frac{1}{2}$  of the cake is the same amount as  $\frac{2}{4}$  of the cake.

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## Find Out More

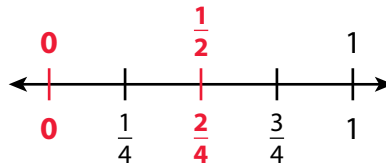
In the last lesson, you compared two models to understand equivalent fractions. The models were the same size, but they had a different number of equal parts. You named the fraction shown in one model. Then you looked at the other model to find the fraction that named the same amount.

You can also find equivalent fractions by dividing the same model in different ways. The cake Izzy's mom made already showed  $\frac{1}{2}$ . You may have drawn lines in one of the ways below to show fourths.



Each of these different ways of making fourths show that  $\frac{2}{4}$  of the cake has chocolate frosting.

Remember, you can look at different equal-size parts on a number line to find equivalent fractions. The number line below shows that  $\frac{1}{2}$  is equivalent to  $\frac{2}{4}$ .



## Reflect

- 1 Izzy's mom now wants to cut the cake into eighths. Explain how to figure out how many eighths of the cake have chocolate frosting.

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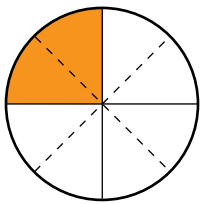
## Learn About Finding Equivalent Fractions

Read the problem below. Then explore different ways to think about equivalent fractions.

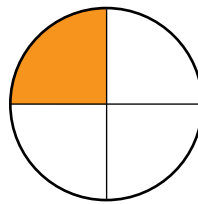
Casen ate  $\frac{2}{8}$  of an orange. Trey's orange is the same size. He ate  $\frac{1}{4}$  of it.  
Show that the two boys ate the same amount of an orange.

**Picture It** You can use models to help find equivalent fractions.

This model shows  $\frac{2}{8}$ .



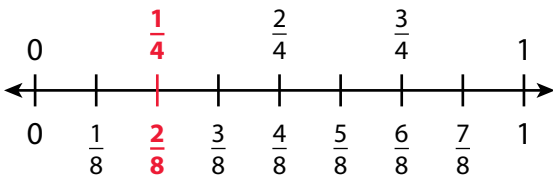
This model shows  $\frac{1}{4}$ .



Look at the model of  $\frac{2}{8}$ . The solid lines divide the circle into fourths. The dashed lines divide each fourth in half to make eighths.

**Model It** You can also use a number line to help find equivalent fractions.

This number line shows both fourths and eighths.



**Connect It** Now you will solve the problem from the previous page using equations.

**2** Look at the models in *Picture It*. How do you know that  $\frac{2}{8}$  of the first model is shaded? \_\_\_\_\_

**3** How do you know that  $\frac{1}{4}$  of the second model is shaded? \_\_\_\_\_

**4** Explain how the models show that the fractions  $\frac{2}{8}$  and  $\frac{1}{4}$  are equivalent. \_\_\_\_\_

**5** How does the number line in *Model It* show that the fractions  $\frac{2}{8}$  and  $\frac{1}{4}$  are equivalent? \_\_\_\_\_

**6** Complete the sentences to show the fractions of the two oranges name the same amount.

Use words: Two eighths is equal to \_\_\_\_\_.

Use fractions:  $\frac{2}{8} =$  \_\_\_\_\_.

**7** Describe two different ways to show two fractions are equivalent. \_\_\_\_\_

**Try It** Use what you just learned to solve these problems.

**8** Draw a model to show  $\frac{2}{3} = \frac{4}{6}$ .

**9** Use the number line below. Find a fraction equivalent to  $\frac{1}{3}$ . Circle the fraction.



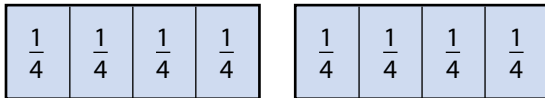
**Learn About**  **Writing a Whole Number as a Fraction**

Read the problem below. Then explore different ways to write a whole number as a fraction.

Kacey used 2 boards of the same size to build a birdhouse. He cut each board into fourths. How can you write the number 2 as a fraction to find how many fourths Kacey divided the boards into?

**Picture It** You can use models to help you write a whole number as a fraction.

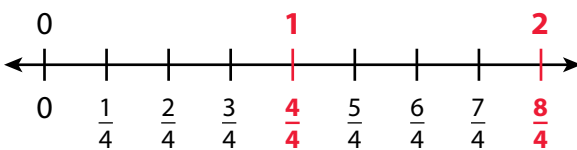
The fraction strips below show 2 wholes, each divided into fourths.



Each part is  $\frac{1}{4}$  of a whole. There are eight  $\frac{1}{4}$ s in all.

**Model It** You can use a number line to help you write a whole number as a fraction.

This number line shows whole numbers on the top and fourths on the bottom.



Notice that each whole number has an equivalent fraction with a denominator of 4.

▶ **Connect It** Now you will solve the problem from the previous page using equations.

**10** Look at the models in *Picture It*. How many equal parts are shown in 1 whole?

Explain how you know. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**11** How many equal parts are shown in 2 wholes? Explain how you know.

\_\_\_\_\_

\_\_\_\_\_

**12** Complete the sentences to show the fraction that is equivalent to 2.

Use words: Two wholes equals \_\_\_\_\_.

Use a fraction:  $2 =$  \_\_\_\_\_.

How many fourths did Kacey cut the boards into? \_\_\_\_\_

**13** Explain how to find a fraction equivalent to a whole number.

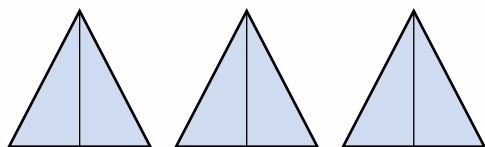
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

▶ **Try It** Use what you just learned to solve these problems.

**14** Use the model below. Write a fraction equivalent to 3.      **15** Draw a model to show  $3 = \frac{18}{6}$ .



$3 =$  \_\_\_\_\_

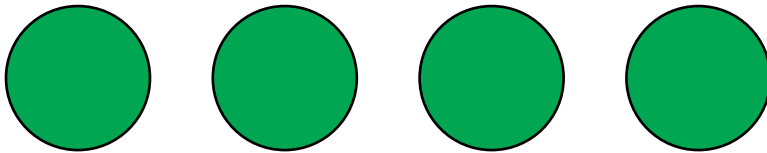
**Learn About**  **Writing a Whole Number as a Fraction**

Read the problem. Then explore different ways to write a whole number as a fraction with a denominator of 1.

Justin picked 4 green peppers from his garden. He did not cut them into pieces. How can you write the number of peppers Justin picked as a fraction?

**Picture It** You can use models to help you write a whole number as a fraction with a denominator of 1.

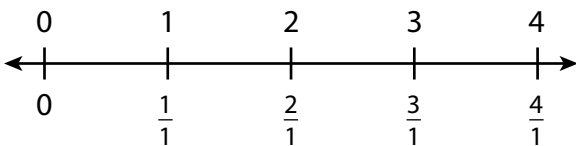
Each circle stands for 1 green pepper.



They are not divided into pieces, so each whole has one part.

**Model It** You can use a number line to help you write a whole number as a fraction with a denominator of 1.

This number line shows whole numbers on the top and fractions on the bottom.



Notice that each whole number has an equivalent fraction. The spaces between whole numbers are not divided into parts. Each whole number has one part, so the denominator of each equivalent fraction is 1.



**▶ Connect It** Now you will solve the problem from the previous page.

**16** Look at the models in *Picture It*. Explain how you know each whole has only 1 part.

\_\_\_\_\_

**17** How many parts do the 4 green peppers make? \_\_\_\_\_

**18** What does the numerator of a fraction show? \_\_\_\_\_

**19** What does the denominator of a fraction show? \_\_\_\_\_

\_\_\_\_\_

**20** Write a fraction equivalent to 4. Use the fraction below to help you.

$\frac{\text{number of parts}}{\text{number of equal parts in a whole}}$  \_\_\_\_\_

**21** Explain how to write a whole number as a fraction with a denominator of 1.

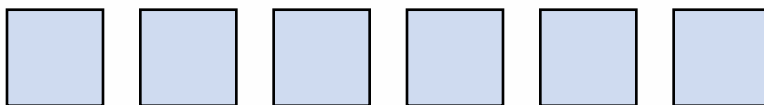
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**▶ Try It** Use what you just learned to solve these problems.

**22** Use the model below. Write a fraction equivalent to 6.



6 = \_\_\_\_\_

**23** Draw a model to show  $5 = \frac{5}{1}$ .



## Practice

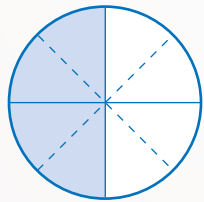
## Finding Equivalent Fractions

Study the example below. Then solve problems 24–26.

## Example

Caleb and Hannah bought two melons that are the same size. Caleb cut his melon into fourths. Hannah cut her melon into eighths. Hannah ate  $\frac{4}{8}$  of her melon. Caleb ate an equal amount of his melon. What fraction of his melon did Caleb eat?

Look at how you could show your work using a model.



Caleb ate  $\frac{2}{4}$  of his melon.

**Solution** \_\_\_\_\_



The student used solid lines to show fourths. She used dashed lines to show how to divide fourths to make eighths.



## Pair/Share

How could you solve this problem using a number line?

- 24 Matt says  $\frac{3}{3}$  is equivalent to 1. Elisa says  $\frac{8}{8}$  is equivalent to 1.

Who is correct?

Show your work.



How many thirds are in 1 whole? How many eighths are in 1 whole?



## Pair/Share

What is another fraction that is equivalent to 1?

**Solution** \_\_\_\_\_

- 25 Write two fractions that are equivalent to 5.

Show your work.



There will be 5 wholes in all. Think about how many parts will be in each whole.

**Solution** \_\_\_\_\_



**Pair/Share**

How did you decide what denominators to use in your fractions?

- 26 Kaia ate  $\frac{3}{6}$  of a banana. Zoie ate an equivalent amount. Which fraction shows how much of a banana Zoie ate? Circle the letter of the correct answer.

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



Find  $\frac{3}{6}$  on a number line. What is another fraction that names the same location?

Landon chose **A** as the correct answer. How did he get that answer?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



**Pair/Share**

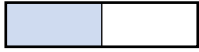
Does Landon's answer make sense?

**Practice**

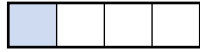
# Finding Equivalent Fractions

Solve the problems.

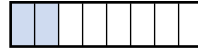
**1** Which model below shows a fraction equivalent to  $\frac{2}{6}$ ?



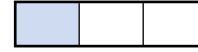
**A**



**B**



**C**



**D**

**2** Which fraction is equivalent to 3?

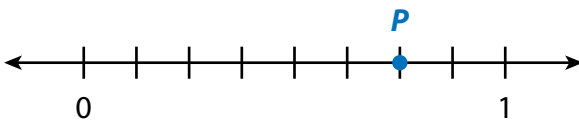
**A**  $\frac{3}{1}$

**B**  $\frac{1}{3}$

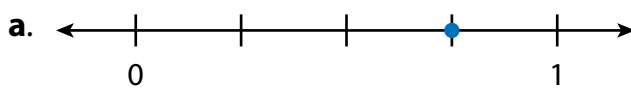
**C**  $\frac{4}{1}$

**D**  $\frac{6}{3}$

**3** Look at point  $P$  on the number line.

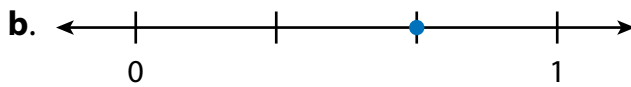


Does the point on the number line show a fraction equivalent to the fraction shown by point  $P$ ? Choose *Yes* or *No* for each number line.



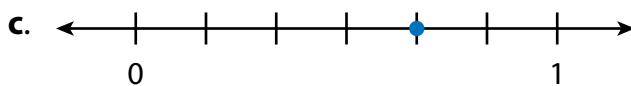
Yes

No



Yes

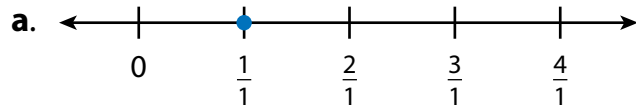
No



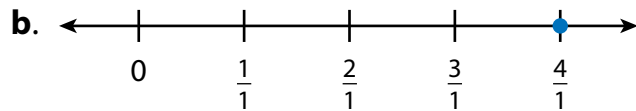
Yes

No

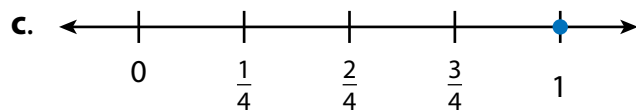
- 4 Does the number marked by the point on the number line represent one whole? Choose Yes or No for each number line.



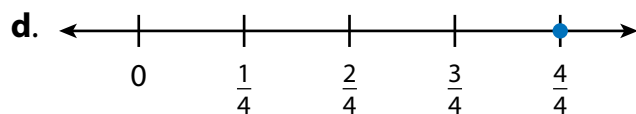
Yes       No



Yes       No



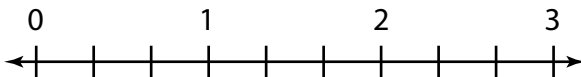
Yes       No



Yes       No

- 5 Use the number line below to find a fraction equivalent to 3.

Show your work.



**Answer** 3 is equivalent to \_\_\_\_\_.

- 6 Draw a model to find a fraction equivalent to  $\frac{1}{4}$ .

Show your work.

**Answer**  $\frac{1}{4}$  is equivalent to \_\_\_\_\_.

 **Self Check** Go back and see what you can check off on the Self Check on page 155.