

## Purpose

To use scale factors to solve for x in proportions

### Math Words

proportion

Two equal ratios such as 8:6 and 4:3 form a proportion. We say 8 is to 6 as 4 is to 3.

$$8:6 = 4:3 \qquad \frac{8}{6} = \frac{4}{3}$$

equation

You can solve a proportion equation to find an unknown part.

$$\frac{5 \text{ cans}}{7 \text{ days}} = \frac{15 \text{ cans}}{x \text{ days}}$$

scale down

To scale down 30 by a factor of 5, divide 30 by 5.

### Starter Problem.....

Find the missing number to make the ratios equal.

$$3:x = 24:16$$

··Starter Problem-·····

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$$3:x = 24:16$$

# Student Thinking



I rewrote the proportion in fraction form. The scale factor is 8, since 3 times 8 equals 24. Since x times 8 has to equal 16, x must equal 2. It checks since  $\frac{3}{2} = \frac{24}{16}$ .



$$\frac{3.8}{x.8} = \frac{24}{16}$$
  $3:x=24:16$   $x=2$ 



I know I need 8 times 3 to get 24, so I have to multiply by 8 on the bottom, too. 16 times 8 is 128, so x is 128.



# Things to Remember

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## Our Turn

Find the value of x. Be prepared to discuss your method.

1. 
$$20:14 = 30:x$$

2. 
$$35:x = 7:25$$

$$35:x = 7:25$$
  $x =$ 

3. 
$$x:10 = 30:25$$

# My Turn

Find the value of x. Be prepared to discuss your method.

1. 
$$14:5 = 42:x$$

2. 
$$24:x = 16:6$$

3. 
$$x:7 = 5:14$$

#### **Multiple Choice Mini Lesson**

Fill in the circle next to the answer you choose.

- x:5 = 12:301.
  - 0 2
- 0 6
- O 180
- 0 72

- 3:10 = x:152.
  - 0 2
- O 4.5
- 0 8
- 0 15



## Solve for x in Proportions

#### **Multiple Choice Mini Lesson**

Fill in the circle next to the answer you choose.

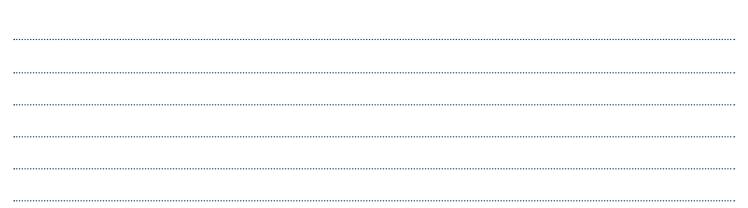
- x:5 = 12:301.
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- 3:10 = x:152.
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- 0 8
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#### **Writing Task Mini Lesson**

Explain how you know that *x* equals 5 in the following proportion. You may make a diagram to help you explain.

$$15:12 = x:4$$





### Solve for x in Proportions

STUDENT PAGE

NAME:

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