



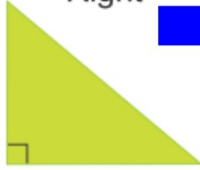



Warm - Up

Copy and identify the different types of triangles

<p>Scalene</p>  <p>Length of all sides are different</p>	<p>Isosceles</p>  <p>Length of two sides are equal</p>	<p>Equilateral</p>  <p>Length of all sides are equal</p>
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Triangles Based on Angles

<p>Acute</p>  <p>Each angle is $< 90^\circ$</p>	<p>Right</p>  <p>One angle is $= 90^\circ$</p>	<p>Obtuse</p>  <p>One angle is $> 90^\circ$</p>
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1)

$$\frac{x}{9} = \frac{7}{14}$$

$x = 4.5$

$$\frac{63}{14} = \frac{14x}{14}$$

$$\frac{6}{14} = \frac{5}{n}$$

$n = 11.6$

$$\frac{6n}{6} = \frac{70}{6}$$

$$\frac{8n}{8} = \frac{8}{3}$$

$24n = 64$

$$\frac{24n}{24} = \frac{64}{24}$$

$n = 2.6$

**Topic:
Similar
Figures**

Lesson Essential Question:

What information do you need know to find the dimensions of a figure that is similar to another?

Key Vocabulary

Congruent



having the same size and shape; equal

- **Congruent sides (or angles)**

Corresponding

matching sides (or angles) of two or more polygons

- **Corresponding sides (or angles)**

Similar Figures

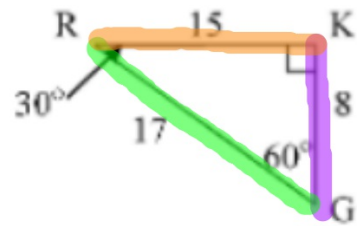
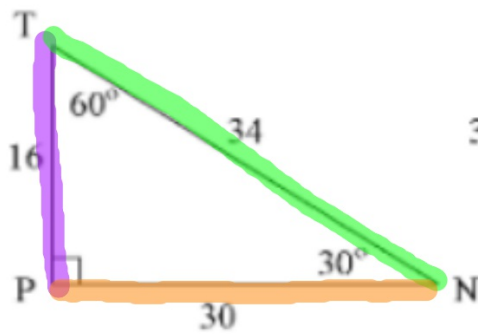


must have congruent corresponding angles and proportional corresponding sides; same shape different size

'~' symbol to describe similarity

'≅' symbol to describe congruence

Are these figures similar?



Corresponding Sides??

TP ~ GK
 TN ~ GR
 PN ~ KR

Corresponding Angles??

90° ∠ K + ∠ P
 60° ∠ G + ∠ T
 30° ∠ R + ∠ N

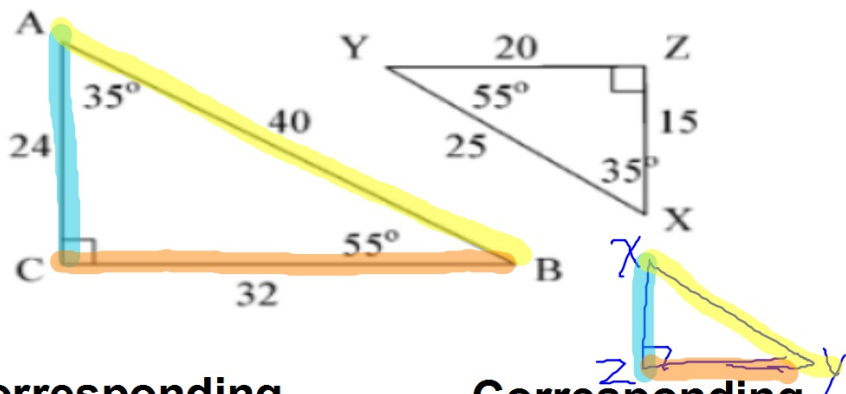
Are they Proportional??

272

$\frac{16}{34} = \frac{8}{17}$
 Yes

272

Are these figures similar?



Corresponding Sides??

Corresponding Angles??

$$AC \sim XZ$$

$$CB \sim ZY$$

$$AB \sim XY$$

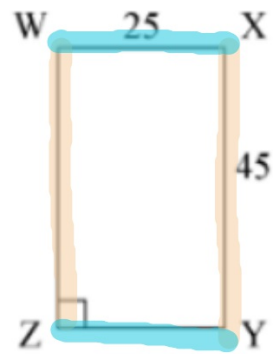
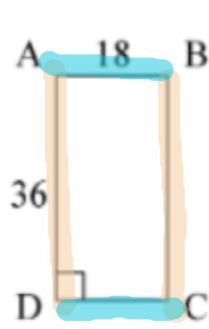
Are they Proportional??

No

$\frac{24}{15} = \frac{32}{20}$
Yes

No

Are these figures similar?



Corresponding Sides??

Corresponding Angles??

Are they Proportional??

810

$$\frac{36}{18} = \frac{45}{25}$$

No

900

Warm up:

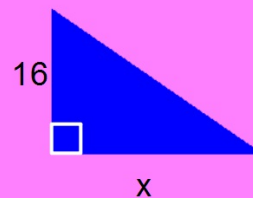
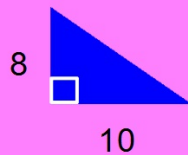
Take out:

- **Notebook**
- **pencil**
- **3 colors (markers/colored pencils)**

Similar and Congruent Figures Worksheet

- **Color Code the Corresponding Sides**

Finding the missing side.

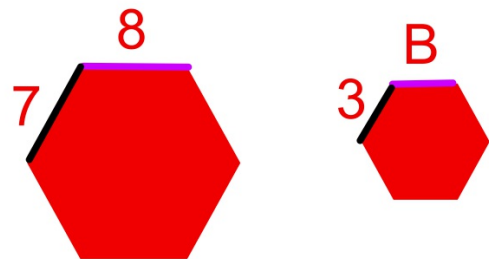
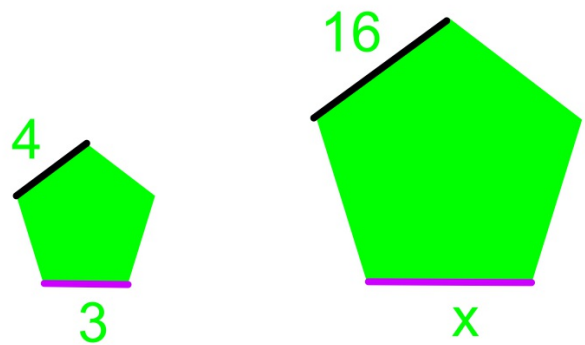


We can use proportions to solve for the missing side in similar figures.

$$\frac{8}{10} = \frac{16}{x}$$

Solve for x.

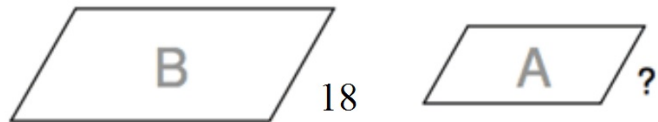
Step 1) Color your sides different colors.
Step 2) Create a proportion for the color coded corresponding sides.
Step 3) Cross multiply and divide



Step 1) Color your sides different colors.

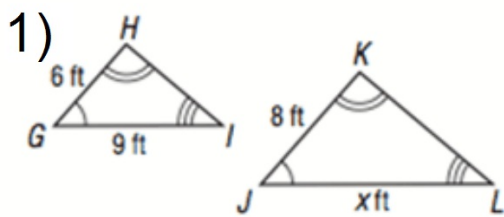
Step 2) Create a proportion for the color coded corresponding sides.

Step 3) Cross multiply and divide

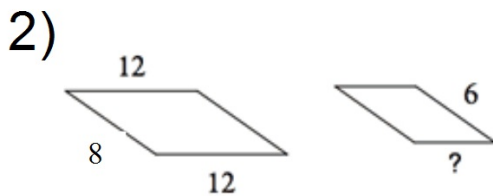


the ratio from A to B = 2:3

Try some on your own...

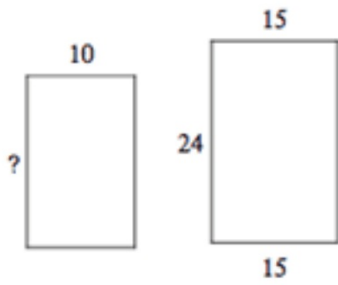


Step 1) Color your sides different color
Step 2) Create proportion for the color code corresponding sides.
Step 3) Cross multiply and divide



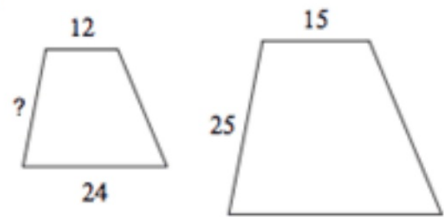
the ratio from A to B = 1:2

1)



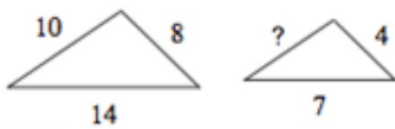
$$\frac{10}{x} = \frac{15}{24}$$

2)

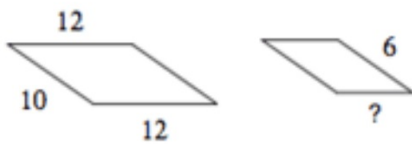


Step 1) Color your sides different colors.
Step 2) Create a proportion. Color the corresponding sides.
Step 3) Cross multiply and divide.

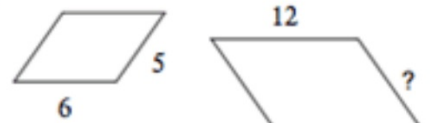
3)



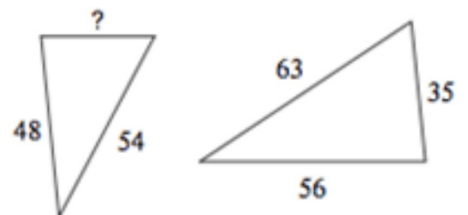
5)



4)



6)



Step 1) Col
your sides
different c
Step 2) Cre
proportion
the color c
correspon
sides.
Step 3) Cro
multiply an
divide

**Topic:
Indirect
Measurements**

Lesson Essential Question:

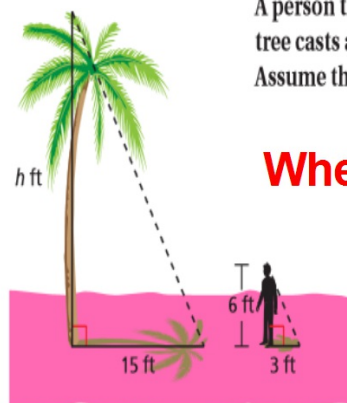
How can we use similar figures to find and describe indirect measures?

What is an "indirect" measurement?

the use of similar figures to find a missing measure that is difficult to find directly

Example

A person that is 6 feet tall casts a 3-foot-long shadow. A nearby palm tree casts a 15-foot-long shadow. What is the height h of the palm tree? Assume the triangles are similar.

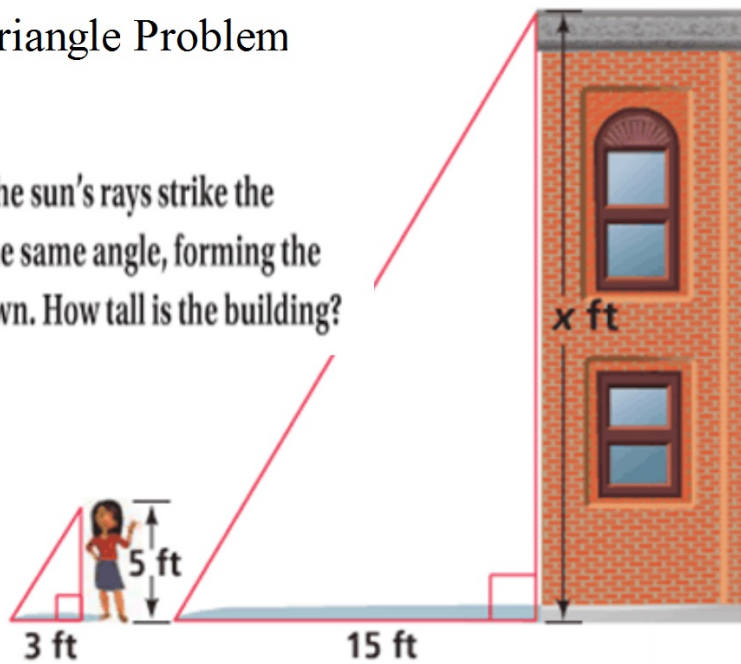


Where's your proportion??

PAGE 27

Similar Triangle Problem

Indirect Measurement The sun's rays strike the building and the girl at the same angle, forming the two similar triangles shown. How tall is the building?



Step 1) Color your sides different colors.
Step 2) Create a proportion for the color coded corresponding sides.
Step 3) Cross multiply and divide

**Some
Examples**

A giraffe is 18 feet tall and cast a shadow of 12 feet. Corey cast a shadow of 4 feet. How tall is Corey's shadow?

1. Draw your figure
2. Set up a proportion

A flagpole cast a shadow of 28 feet long. A person standing by cast a shadow of 8 feet long. If the person is 6 feet tall, how tall is the flagpole?

1. Draw your figure
2. Set up a proportion

Thursday
2/23

Agenda:

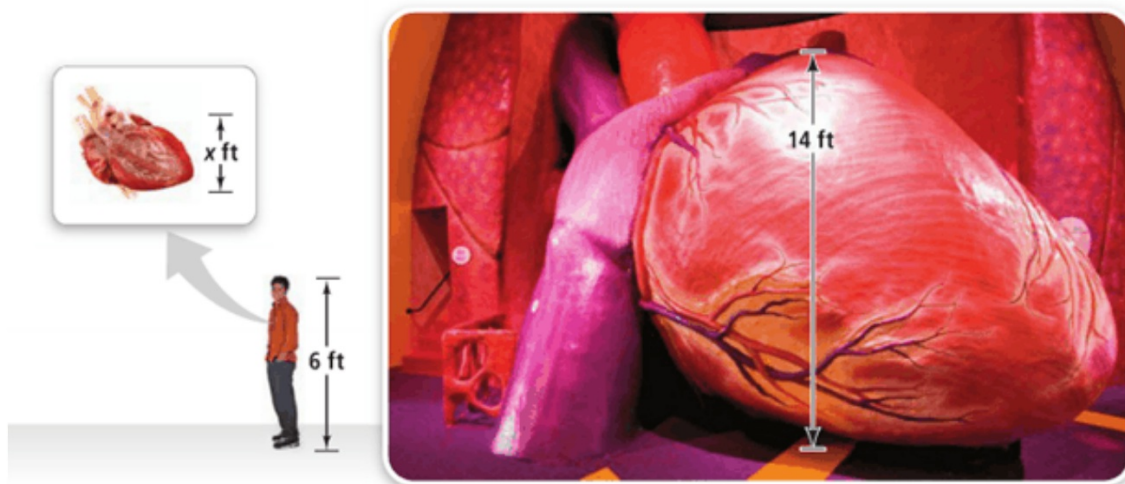
- Warm up
- Scale Factor
Cornell Notes
- Independent
Practice

Warm up: (Honors)

1) A soccer field is a rectangle 90 meters wide and 120 meters long. The coach asks players to run from one corner to the corner diagonally across. What is the distance? (IPS)

2) A rock concert is being televised. The bass player, who is 75 inches tall, is 15 inches on a TV monitor. The image of Bruno Mars is 13 inches tall on the monitor. How tall is the Bruno?

- 3) **Science** A giant model heart on display at the Franklin Institute Science Museum in Philadelphia is shown below. The heart is the ideal size for a person who is 220 ft tall. About what size would you expect the heart of a man who is 6 ft tall to be?



Thursday
2/23

Agenda:

- Warm up
- Scale Factor
- Cornell Notes
- Independent Practice

Warm up:

1) A rock concert is being televised. The bass player, who is 75 inches tall, is 15 inches on a TV monitor. The image of Bruno Mars is 13 inches tall on the monitor. How tall is the Bruno?

2) **Science** A giant model heart on display at the Franklin Institute Science Museum in Philadelphia is shown below. The heart is the ideal size for a person who is 220 ft tall. About what size would you expect the heart of a man who is 6 ft tall to be?

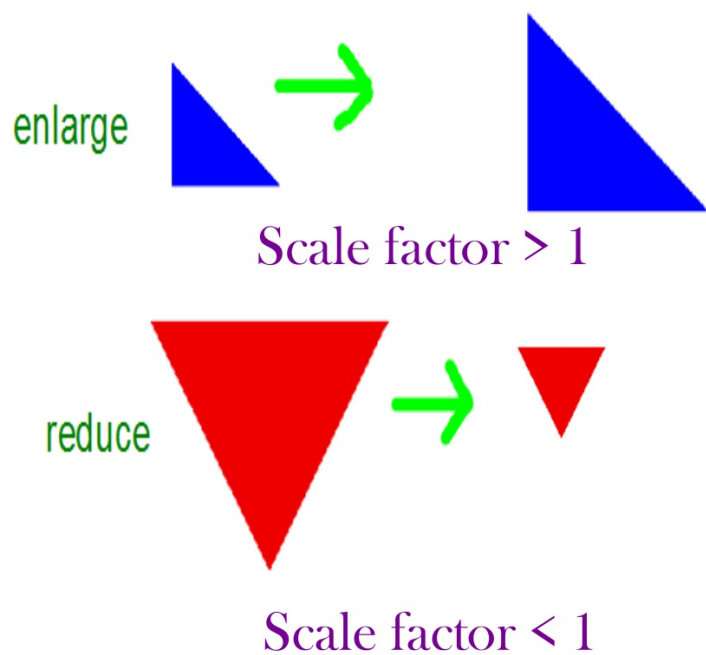


**Scale
Scale Factor
Scale
Drawings
or
Scale Model**

LEQ: How do we use scale factor to enlarge or reduce an object? What does it mean to draw an object to scale?

Reducing or enlarging a figure proportionally is called a **dilation**.

The **scale factor** tells how many times larger or smaller a similar figure is than its original.



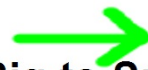
enlarge



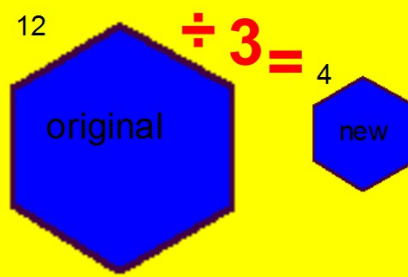
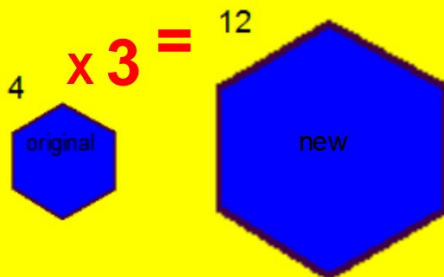
Small to Big
Multiply



reduce



Big to Small
Divide





New
Original

The scale factor for these figures would be 3.

The scale factor for these figures would be $1/3$.



So we if make a formula for
scale factor,

$$2 \times ? = 8$$


it would be...

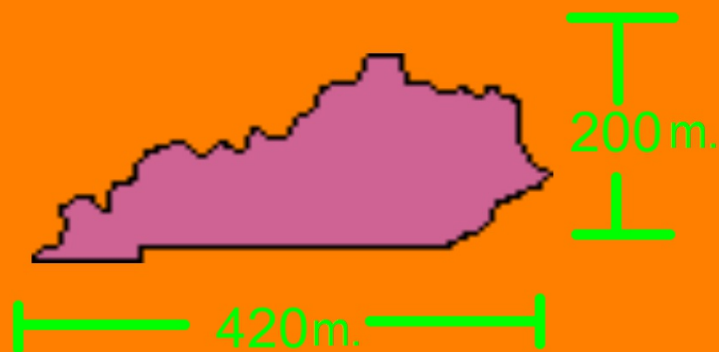
original x scale factor = dilation

Step 1: Write a ratio comparing the two measurements.

Step 2: Create a proportion using the given information.

Step 3: Cross Multiply and Solve.

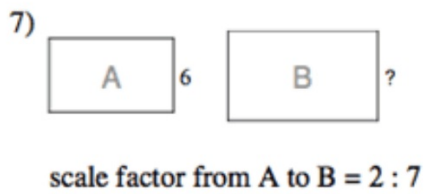
The state of Kentucky is 420miles by 200 miles. If the map scale factor is $1\text{in} = 100\text{ miles}$. What would be the dimensions for the map?



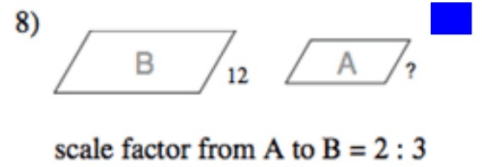
Step 1: Write a ratio comparing two measurements.

Step 2: Create a portion using the given information.

Step 3: Cross multiply and solve.



$$\frac{A}{B} \text{ is } \frac{2}{7} = \frac{6}{x}$$



A map has a scale of 3cm : 18 km. If Riverside and Smithville are 54 km apart then they are how far apart on the map?

Step 1: Write a ratio comparing the two measurements.

Step 2: Create a proportion using the given information.

Step 3: Cross Multiply and Solve.

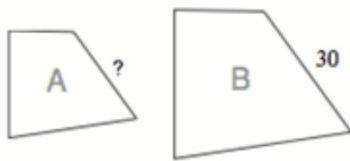
A model house is 12 cm wide. If it was built with a scale of 3cm : 4 m then how wide is the real house?

Step 1: Write a ratio comparing the two measurements.

Step 2: Create a proportion using the given information.

Step 3: Cross Multiply and Solve.

9)



scale factor from A to B = 5 : 6



11)



scale factor from A to B = 2 : 3



10)



scale factor from A to B = 1 : 7



12)



scale factor from A to B = 1 : 2



13)



scale factor from A to B = 6 : 7



14)



scale factor from A to B = 1 : 3

