Math 7 Name _____

Class Notes Date _____

Exploring Similar Figures

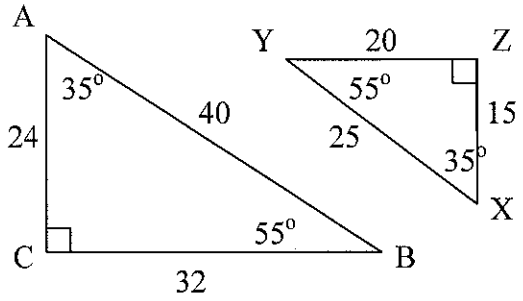
Similar Figures – Polygons that have the same shape, but different size.

Corresponding – Having the same position.

Two polygons are similar if:

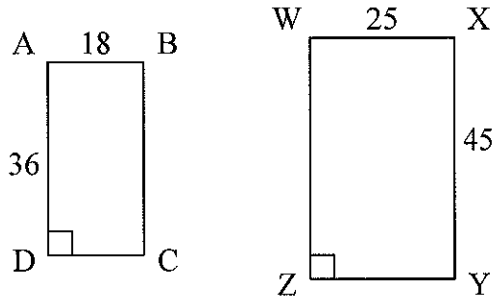
1. corresponding angles are congruent **AND**
2. the lengths of corresponding sides are in proportion, called the **scale factor**.

Show if the triangles below are similar or not.

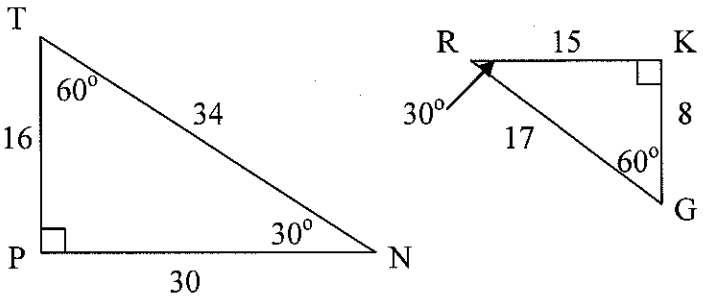


When two polygons are similar, we can write a similarity statement using the symbol "~".

1. Are the following rectangles similar?



2. Are the following triangles similar?



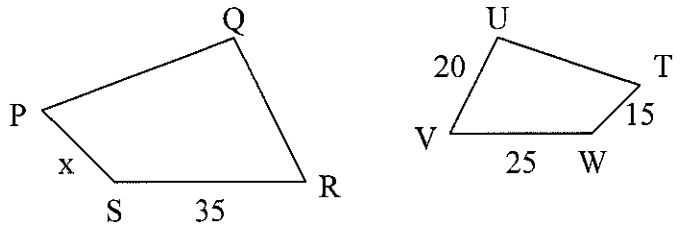
Math 7 Name _____

Class Notes Date _____

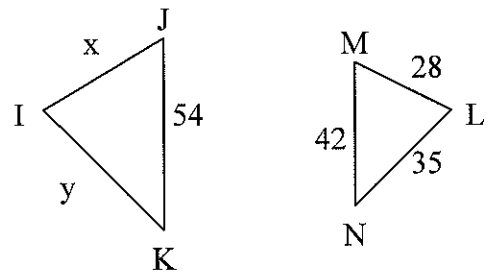
Similar Figures

Given two figures are similar, corresponding sides must be in proportion. Therefore, we can write a proportion to find the missing side length of one of the figures.

1. Given quadrilateral PQRS ~ TUVW, write a proportion to find the length of $\overline{PS}$.



2. Given $\Delta IJK \sim \Delta LMN$, Find the length of $\overline{IJ}$ and then the length of $\overline{IK}$.



3. If a 36-inch yardstick casts a 21-foot shadow, how tall is a building whose shadow is 168 feet? (Draw a picture with two similar polygons.)

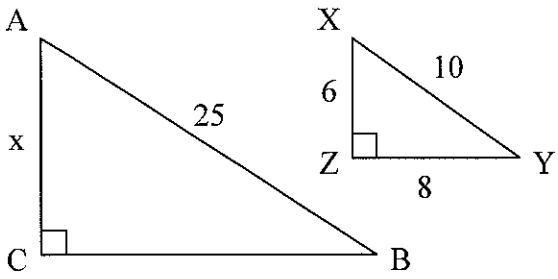
4. Sam wants to enlarge a triangle with sides 3, 6 and 6 inches. If the shortest side of the new triangle is 13 inches, how long will the other two sides be?

Math 7 – Assignment #8 Name _____

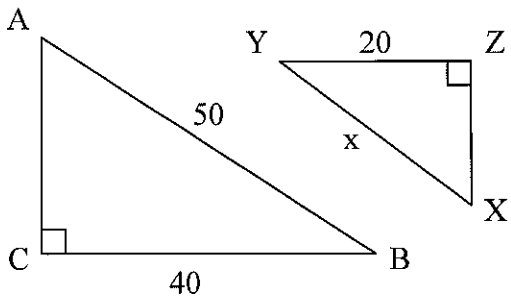
Problem Solving with Similar Figures Date _____

Find the missing side lengths in each pair of similar figures.

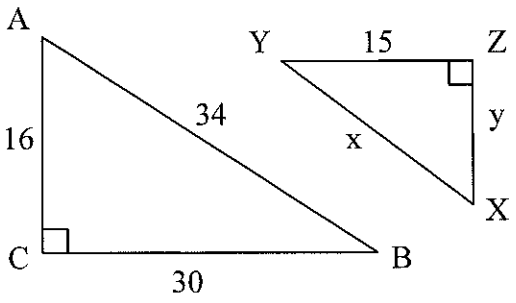
1. $\Delta ABC \sim \Delta XYZ$



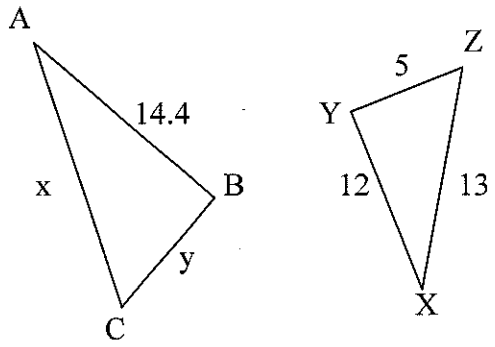
2. $\Delta ABC \sim \Delta XYZ$



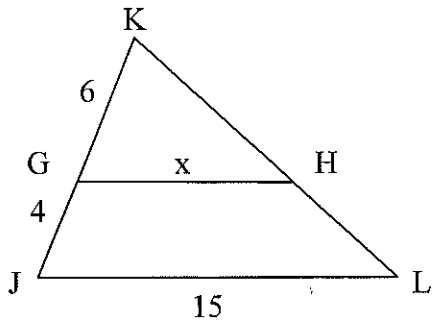
3. $\Delta ABC \sim \Delta XYZ$



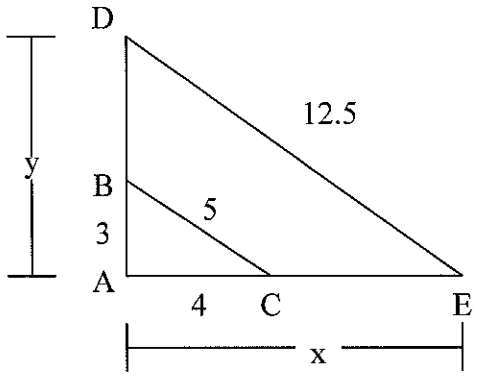
4. $\Delta ABC \sim \Delta XYZ$



5. $\Delta JKL \sim \Delta GKH$



6. $\Delta ABC \sim \Delta ADE$



Use similar triangles to find the missing information.

7. A giraffe is 18 feet tall and casts a shadow of 12 feet. Corry casts a shadow of 4 feet. How tall is Corry?

8. When a Ferris wheel casts a 20-meter shadow, a man 1.8 meters tall casts a 2.4-meter shadow. How tall is the Ferris wheel?

9. A flagpole casts a shadow 28 feet long. A person standing nearby casts a shadow eight feet long. If the person is six feet tall, how tall is the flagpole?

10. A photograph measuring four inches wide and five inches long is enlarged to make a wall mural. If the mural is 120 inches wide, how long is the mural?

11. A 9-foot ladder leans against a building six feet above the ground. At what height would a 15-foot ladder touch the building if both ladders form the same angle with the ground?

12. Chris wants to reduce a triangular pattern with sides 16, 16 and 20 centimeters. If the longest side of the new pattern is to be 15 cm, how long should the other two sides be?

Kuta Software - Infinite Pre-Algebra

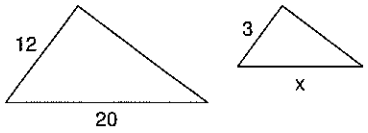
Name_____

Similar Figures

Date_____ Period____

Each pair of figures is similar. Find the missing side.

1)



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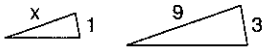

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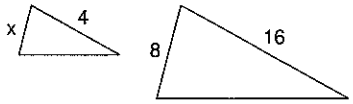

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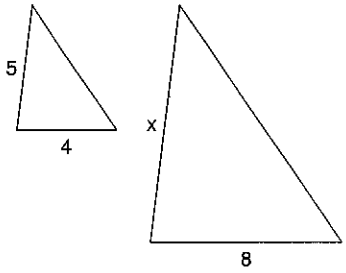

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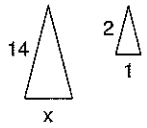

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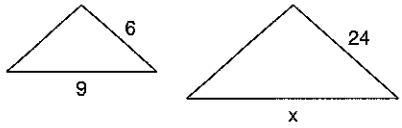

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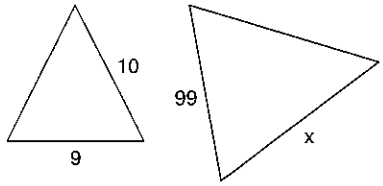

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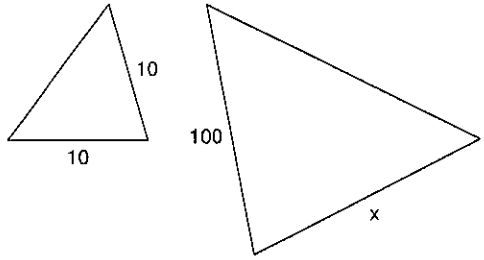

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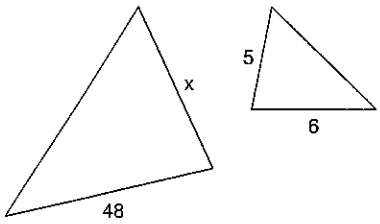

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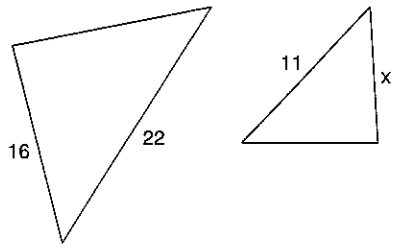

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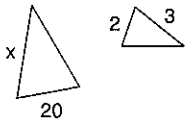

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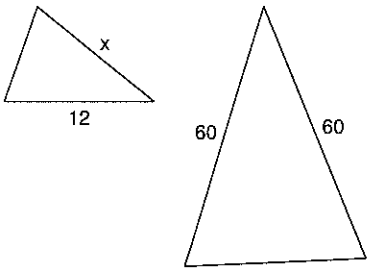

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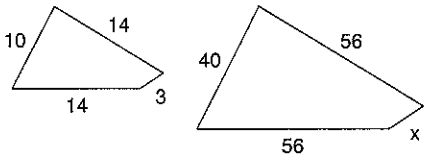

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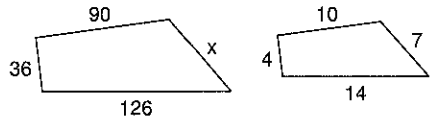

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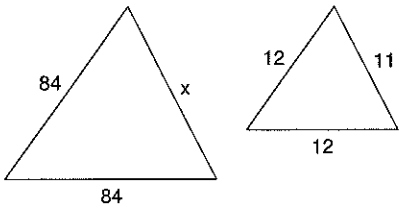

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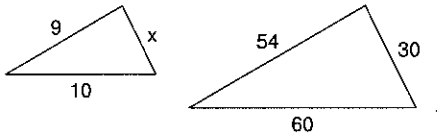

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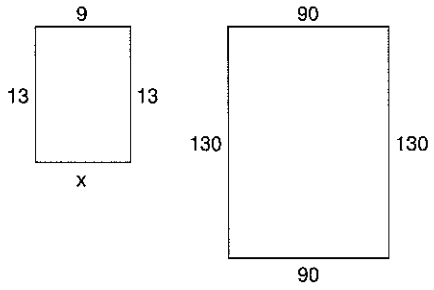

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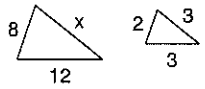

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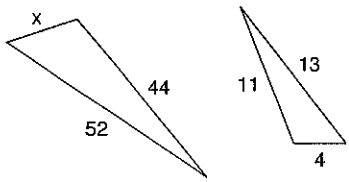

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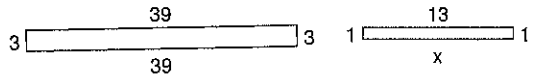

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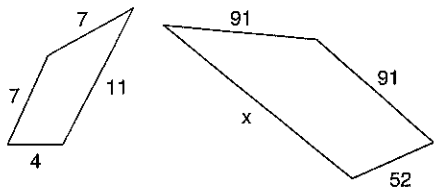

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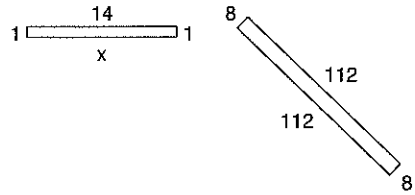

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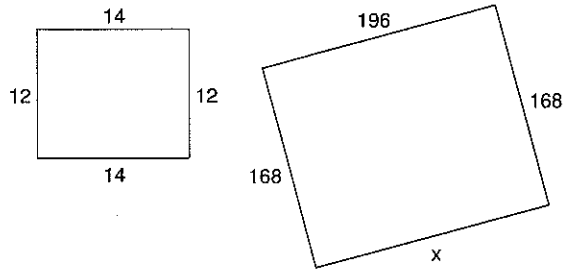

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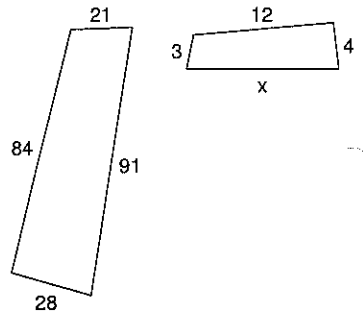

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Name_____

Similar Figures

Date_____ Period____

Each pair of figures is similar. Find the missing side.

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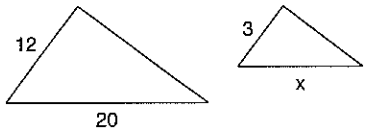

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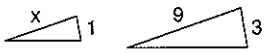

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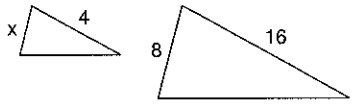

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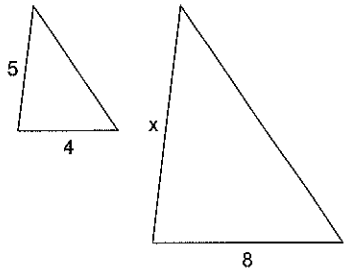

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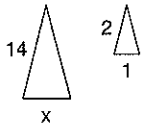

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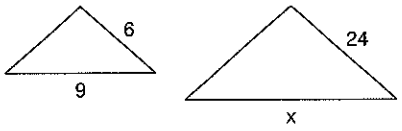

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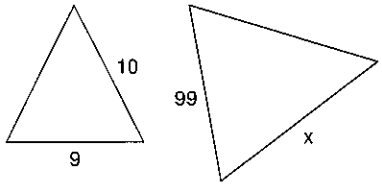

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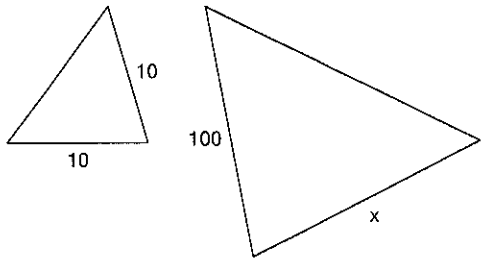

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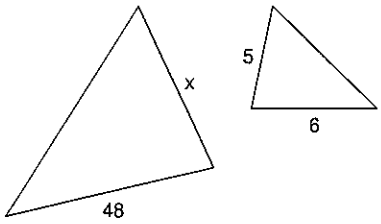

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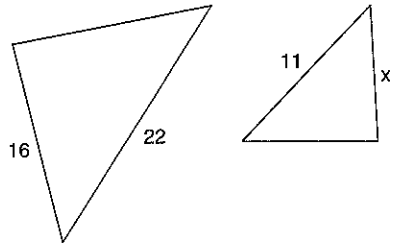

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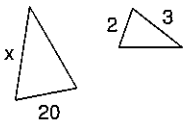

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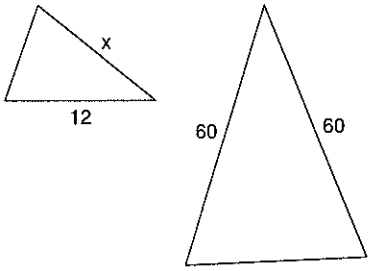

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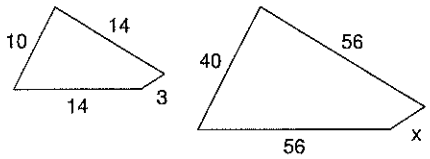

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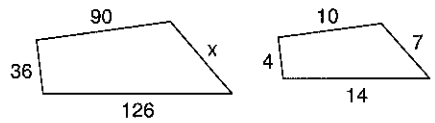

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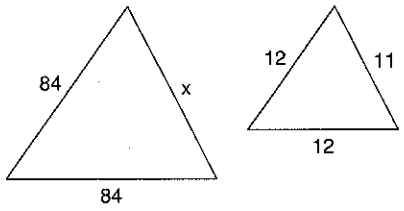

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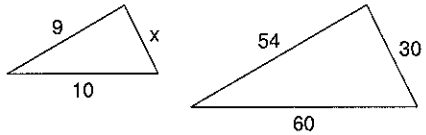

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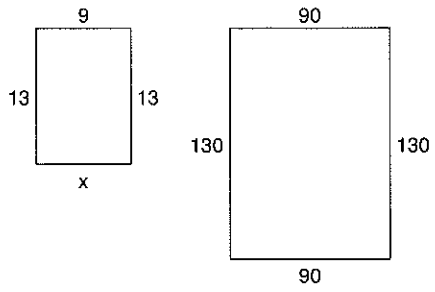

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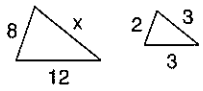

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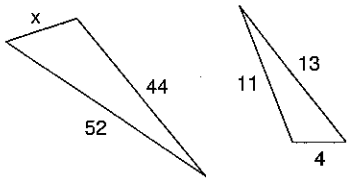

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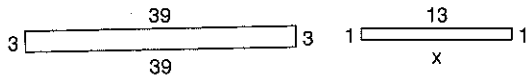

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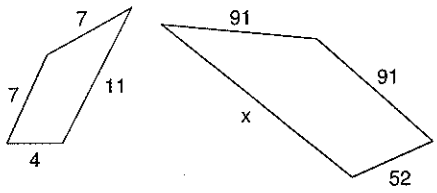

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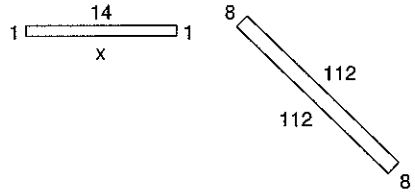

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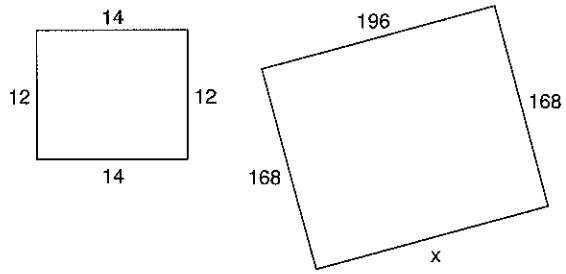

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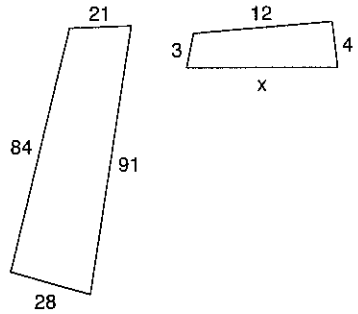

13

Kuta Software - Infinite Pre-Algebra Name_____

Similar Figure Word Problems

Date_____ Period____

Answer each question and round your answer to the nearest whole number.

1) A 6 ft tall tent standing next to a cardboard box casts a 9 ft shadow. If the cardboard box casts a shadow that is 6 ft long then how tall is it?

2) A telephone booth that is 8 ft tall casts a shadow that is 4 ft long. Find the height of a lawn ornament that casts a 2 ft shadow.

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

4) Find the distance between Riverside and Milton if they are 12 cm apart on a map with a scale of 4 cm : 21 km.

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

6) Oak Grove and Salem are 87 mi from each other. How far apart would the cities be on a map that has a scale of 5 in : 29 mi?

7) A map has a scale of 2 in : 6 mi. If Clayton and Centerville are 10 in apart on the map then how far apart are the real cities?

8) A statue that is 12 ft tall casts a shadow that is 15 ft long. Find the length of the shadow that a 8 ft cardboard box casts.

Answer each question and round your answer to the nearest tenth.

9) A model house has a scale of 1 in : 2 ft. If the real house is 26 ft wide then how wide is the model house?

10) A 6.5 ft tall car standing next to an adult elephant casts a 33.2 ft shadow. If the adult elephant casts a shadow that is 51.5 ft long then how tall is it?

11) If a 42.9 ft tall flagpole casts a 253.1 ft long shadow then how long is the shadow that a 6.2 ft tall woman casts?

12) Georgetown and Franklin are 9.7 in apart on a map that has a scale of 1.1 in : 15 mi. How far apart are the real cities?

Kuta Software - Infinite Pre-Algebra Name_____

Similar Figure Word Problems

Date_____ Period____

Answer each question and round your answer to the nearest whole number.

1) A 6 ft tall tent standing next to a cardboard box casts a 9 ft shadow. If the cardboard box casts a shadow that is 6 ft long then how tall is it?

4 ft

2) A telephone booth that is 8 ft tall casts a shadow that is 4 ft long. Find the height of a lawn ornament that casts a 2 ft shadow.

4 ft

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

9 cm

4) Find the distance between Riverside and Milton if they are 12 cm apart on a map with a scale of 4 cm : 21 km.

63 km

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

16 m

6) Oak Grove and Salem are 87 mi from each other. How far apart would the cities be on a map that has a scale of 5 in : 29 mi?

15 in

7) A map has a scale of 2 in : 6 mi. If Clayton and Centerville are 10 in apart on the map then how far apart are the real cities?

30 mi

8) A statue that is 12 ft tall casts a shadow that is 15 ft long. Find the length of the shadow that a 8 ft cardboard box casts.

10 ft

Answer each question and round your answer to the nearest tenth.

9) A model house has a scale of 1 in : 2 ft. If the real house is 26 ft wide then how wide is the model house?

13 in

10) A 6.5 ft tall car standing next to an adult elephant casts a 33.2 ft shadow. If the adult elephant casts a shadow that is 51.5 ft long then how tall is it?

10.1 ft

11) If a 42.9 ft tall flagpole casts a 253.1 ft long shadow then how long is the shadow that a 6.2 ft tall woman casts?

36.6 ft

12) Georgetown and Franklin are 9.7 in apart on a map that has a scale of 1.1 in : 15 mi. How far apart are the real cities?

132.3 mi