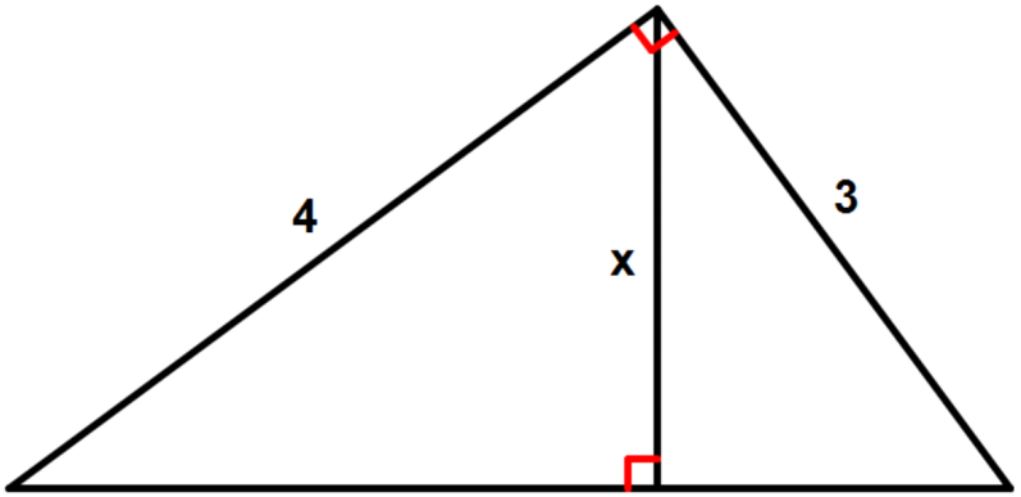
7.4 Similarity in Right Triangles

Monday, September 23, 2019 7:46 AM

Warm Up

Work with your table to find the height of the triangle x.



Essential Question

In a right triangle, what is the relationship between the altitude to the hypotenuse, triangle similarity, and the geometric mean?

Needed Vocab:

- **Geometric Mean**

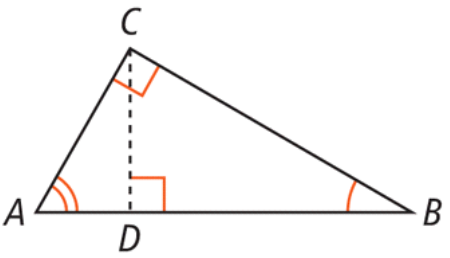
Goal: "I can. . .

Use similarity and the geometric mean to solve problems involving right triangles."

Example 1

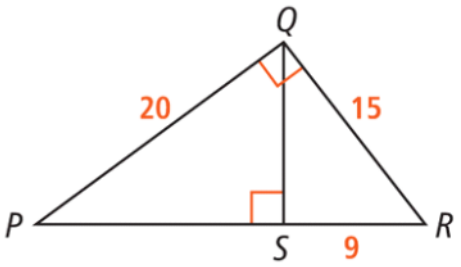
When you draw an altitude to the hypotenuse of a right triangle, you create three right triangles. How are the triangles related?

1. How is $\triangle ACD$ related to $\triangle CBD$? Explain.



Example 2

Given that $\triangle PQR \sim \triangle QSR$, what is QS?



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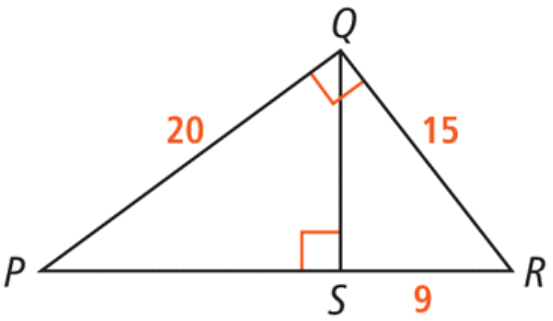
2. Refer to $\triangle PQR$.

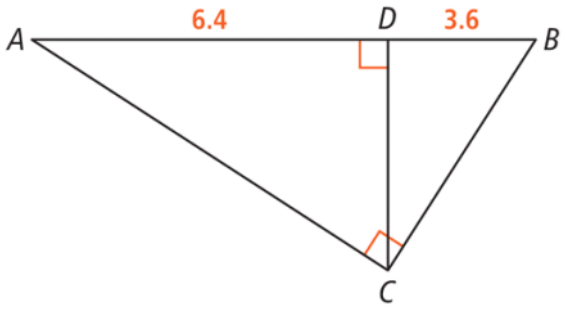
a. Write a proportion that you can use to solve for PS.

b. What is PS?



Example 3

Given $\triangle ACB$, what is CD?



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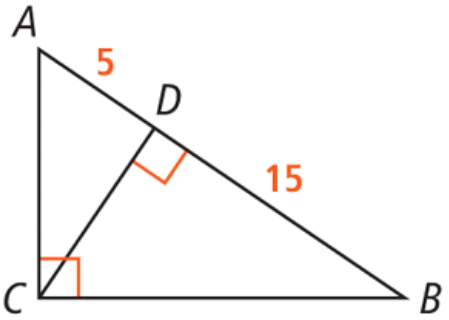
3. Use $\triangle ABC$.

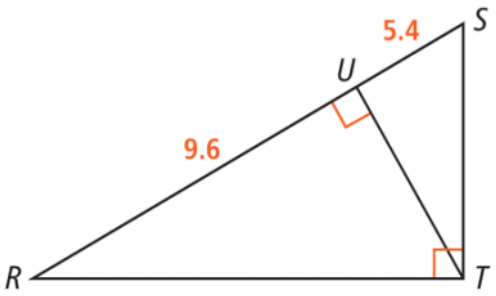


a. What is CD?

b. Describe how you can use the value you found for CD to find AC and CB.

Example 4

Given $\triangle RST$, what is RT?



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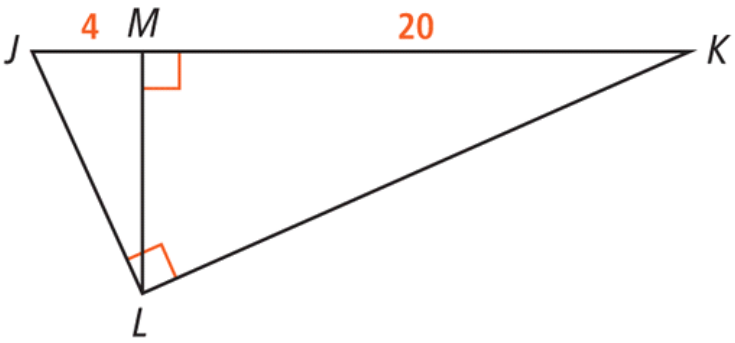
4. Use $\triangle JKL$.

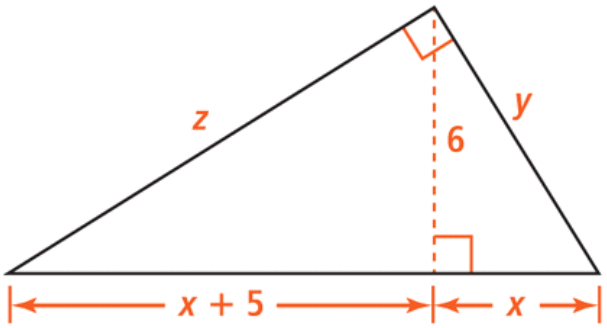
a. What is JL?

b. What is KL?



Example 5

What is the value of x?



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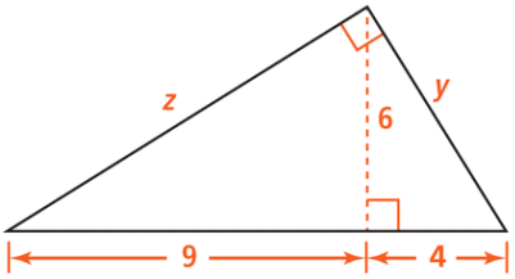
5. Use the geometric mean to find each unknown.

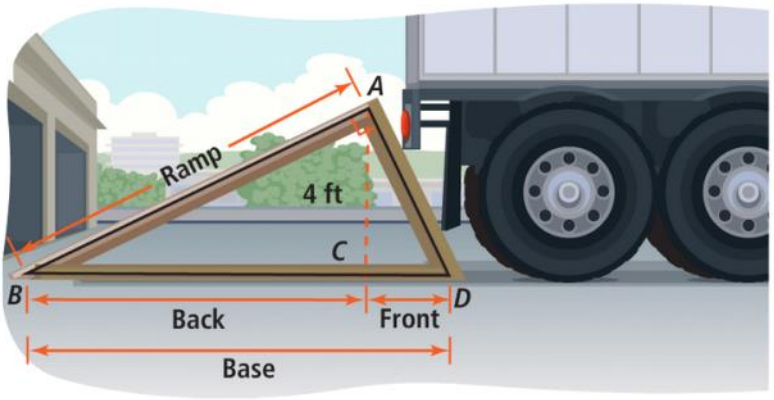
a. Find the value of y.

b. Find the value of z.



Example 6

Zhang is constructing a 4-ft high loading ramp. The length of the back of the base must be 12.8 ft. How long must the entire base be?



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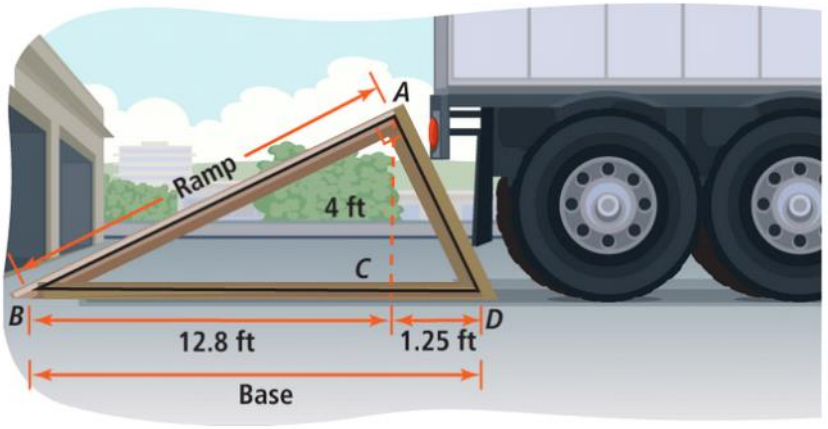
6. How long should Zhang make the ramp?



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https://tinyurl.com/vx3ha6b

Homework

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