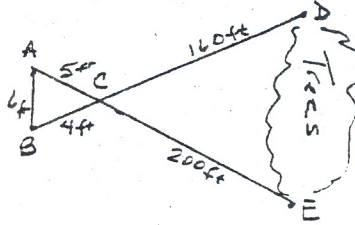


1. A group of trees prevents a surveyor from measuring one side of a lot. She locates points A, B, C, D, and E as shown in the diagram to help her obtain a measurement of the blocked side.



$\triangle ABC \sim \triangle EDC$? Justify your answer.

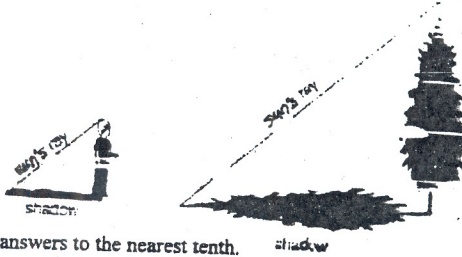
b) Find DE.

2. The Smiths have hired a tree removal service to cut down a tree. To be certain that the tree won't hit the house, the workers need to know approximately how tall the tree is. The workers measure the length of the shadow cast by the tree and find that it is 38 feet long. At the same time, a worker who is 6 feet tall casts a shadow whose length is 7 feet. Find the approximate height of the tree.

a) Explain how these triangles are similar. (hint: use AA~ !!)

b) Label the triangles

c) Answer the question, use correct units!!



Draw a diagram using similar triangles, then solve the problem. Round answers to the nearest tenth.

3. A painter needs to know the height of a building to estimate the amount of paint needed for the front side. When the building casts an 18 foot shadow, the 6 foot tall painter casts a 9 foot shadow. How tall is the building??

4. Each time Old Faithful in Yellowstone Park erupts, rangers could estimate the height of the geyser by comparing it to the height of a tree. First the rangers locate a tree of the same height. The shadow of the tree is 93 feet at the same time that the shadow of a 6 foot ranger is 4 feet. Find the height of the tree.

5. The length of the shadow of a 6 foot man is 4.8 feet. Find the height of a pole that casts a 22 foot shadow.

A person 5 foot tall casts a shadow that is 8 feet 9 inches long. The person is standing next to a flagpole and the flagpole casts a shadow that is 21 feet long. How tall is the flagpole?? (Watch out !!! - 8 feet 9 inches does not equal 8.9 !!)

To find the height of a tree, Harry places a mirror so that he can see the top of the tree in the mirror. The mirror is 3 feet from him and 7.5 feet from the tree. If Harry is 5 feet 6 inches tall, how tall is the tree??

A yardstick casts a 2 foot shadow at the same time that a nearby tree casts a 15 foot shadow. How tall is the tree??