

Indicators

Objective:

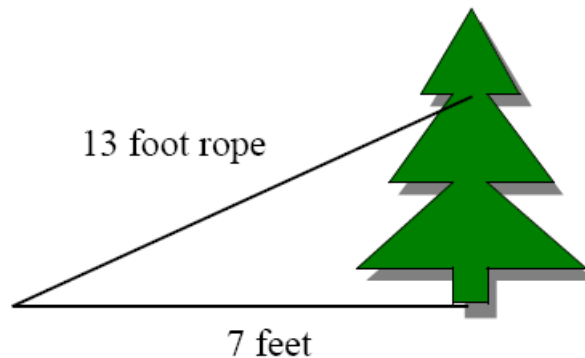
2.02 Apply and use concepts of indirect measurement.

Vocabulary and Resources		
similar figures	ratio	scale drawings
corresponding parts	proportion	Pythagorean theorem

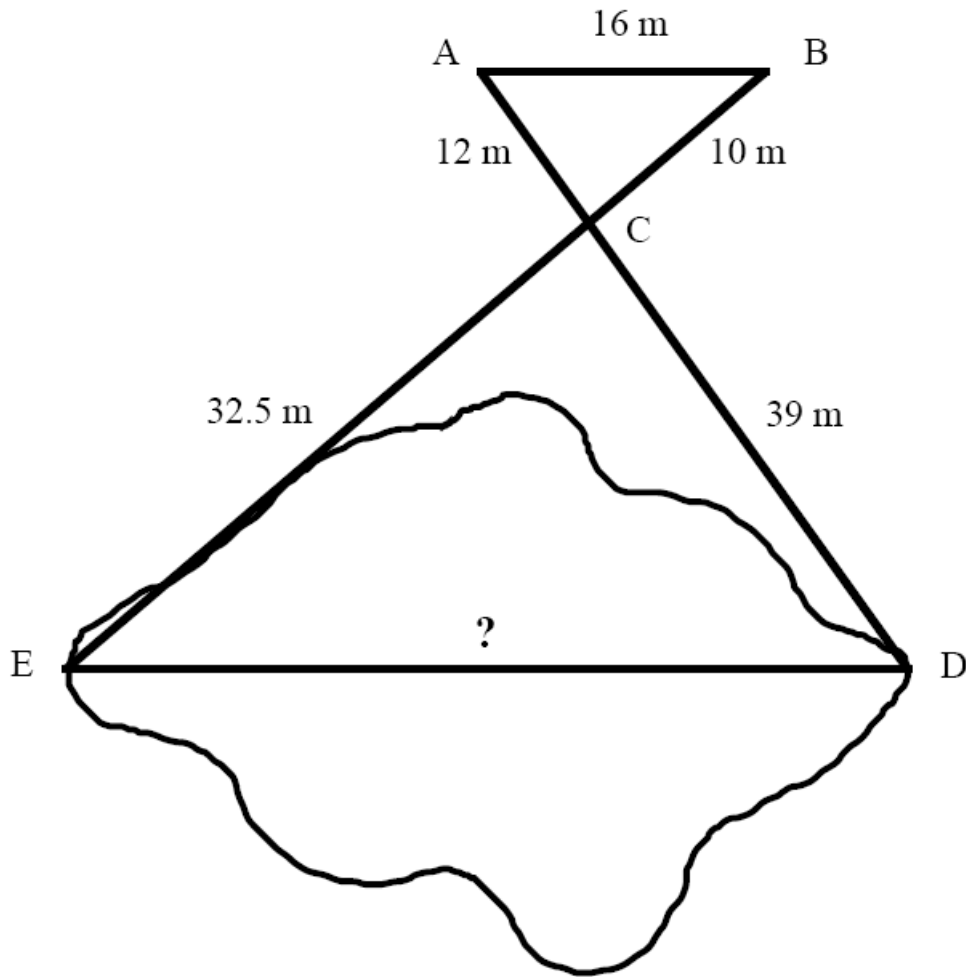
A. A billboard is 18 feet high and casts a 24 foot shadow. At the same time, a flagpole next to the billboard casts a 60 foot shadow. Find the height of the flagpole.

B. Jesse, who is 6 feet 2 inches tall, wants to determine the height of the oak tree located in the school yard. At 10:00 a.m. his shadow measured 2 feet 6 inches. What is the height of the tree if its shadow at 10:00 a.m. is approximately 35 feet?

C. A 13-foot rope is tied 5 feet from the top of a pine tree. It is anchored 7 feet from the base of the tree. How tall is the pine tree?



D. An engineer is drawing plans for a walkway across a pond. She is unable to measure the distance across the pond directly so she plans on using properties of similar triangles to determine the distance. Using wooden stakes and rope, she sets up two similar triangles as shown below. If $\triangle ABC$ is similar to triangle $\triangle DEC$, determine the distance across the pond.



E. Toni's dad works in construction and knows that safety is of utmost concern when placing a ladder against a house. If he is using a 24-foot ladder, he makes sure that he has the foot of the ladder on flat ground 8 feet from the house. In order to keep this same ratio, how far from the house should he place an 8-foot ladder? If he is using the 24-foot ladder as described above, what is the vertical distance from the top of the ladder to the ground?