

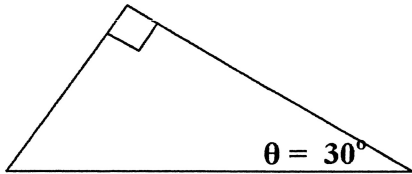
More Practice with the Tangent Function

Recall:

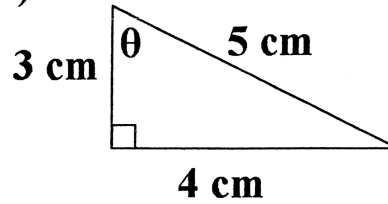
$$\tan \theta = \frac{\textit{opposite}}{\textit{adjacent}}$$

1. Determine the 'tan' of the angle θ (to 4 digits).

a)

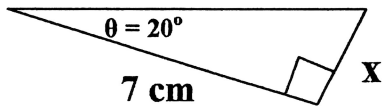


b)

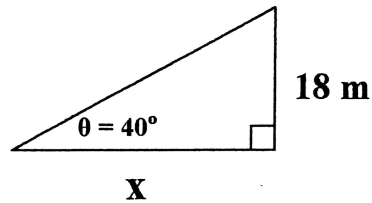


2. Use the tangent function to determine the length of side 'x'.

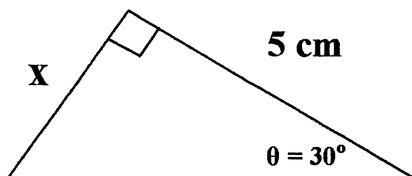
a)



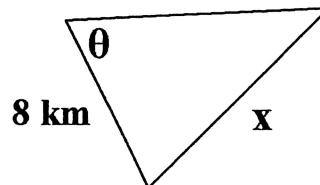
b)



c)

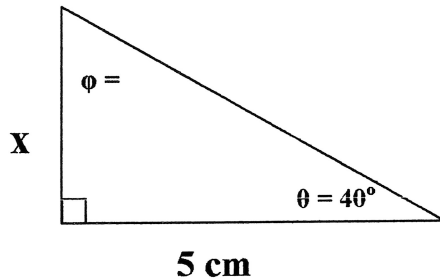


d)



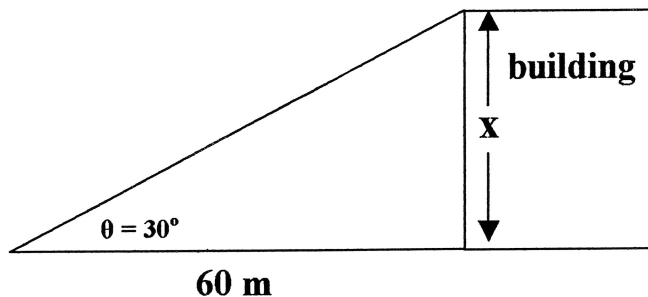
Regardless of the angle that is chosen in a right triangle (other than the right angle), you should be able to solve for a side.

Solve for 'x' in the diagram below using both θ and ϕ .

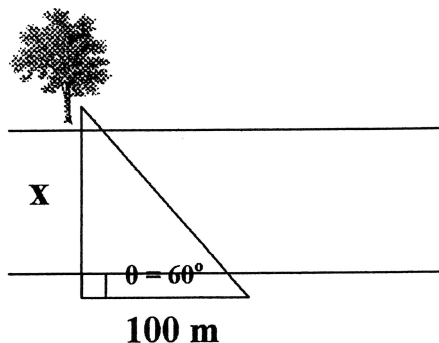


Applications of the Tangent Function

1. The top of a building has an elevation of 30° above the ground when standing 60 m away from it. How tall is the building?

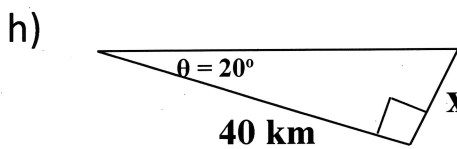
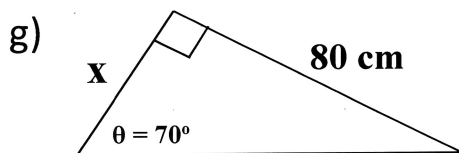
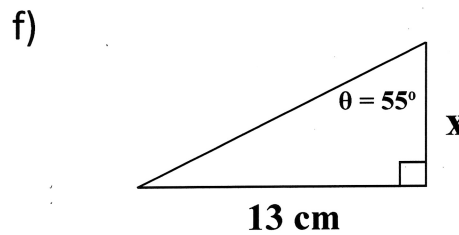
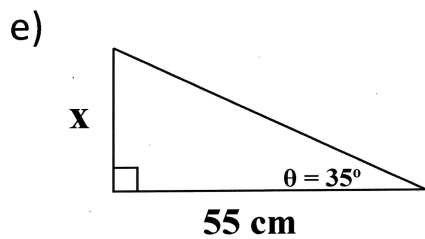
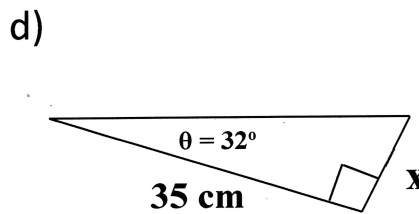
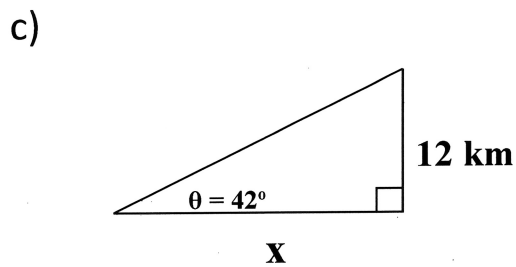
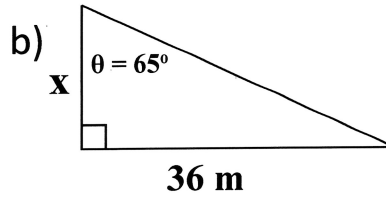
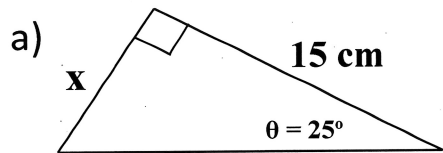


2. An observer notices a tree on the opposite side of a river. He walks 100 m perpendicular to his initial line of sight and then realizes that the tree is now located at an angle of 60° with his walking path. How far is the distance across the river?



Solving Sides Using the Tangent Ratio – Practice

For each triangle below, use the tangent ratio to determine the length of the side marked x.



Answers: a) 7.0 cm b) 16.8 m c) 13.3 km d) 21.9 cm e) 38.5 cm f) 9.1 cm g) 29.1 cm h) 14.6 km