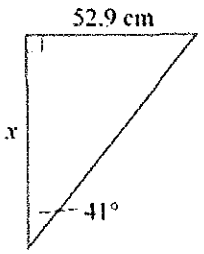
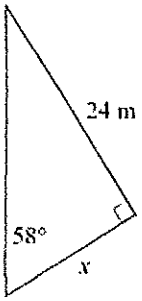
The Tangent Ratio Worksheet

1) Find the value of the unknown in each of the following triangles.

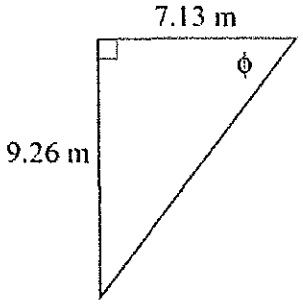
a)



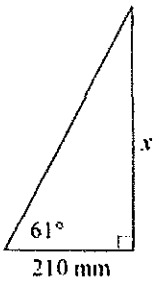
b)



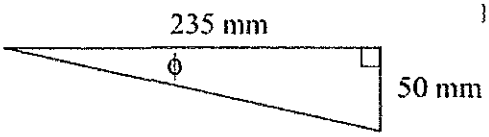
c)



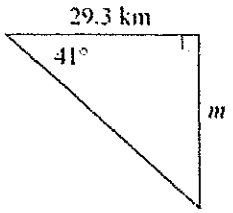
d)



e)

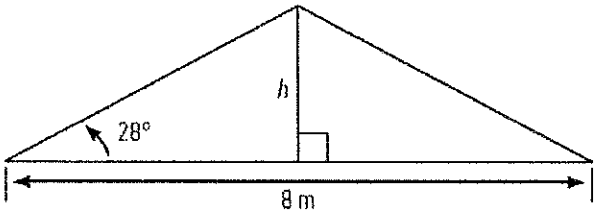


f)



2) The **angle of depression** to a boat from the top of a 150-metre cliff is 20°. How far is the boat from the base of the cliff?

3) When sand is piled onto a flat surface, it forms a cone. If the pile is 8m wide, and the angle between the ground and the slope of the pile is 28°, what is the height of the pile?



4) A 1.7 metre tall man stands 12 m from the base of a tree. He views the top of the tree at an angle of elevation of 58°. How tall is the tree?

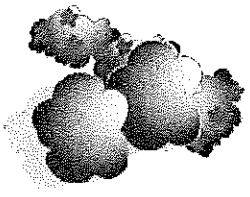
5) Two buildings are 18.5 metres apart. The angle of elevation from the top of one building to the top of the other is 18°. If the taller building is 15 metres tall, how tall is the shorter building?

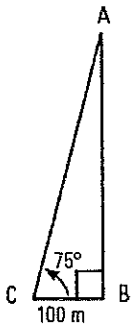
6) How far from the base of the house is the foot of a ladder if the angle of elevation is 70° and it reaches 15 feet up the side of the house?

7) About how tall is a tower if the angle of depression from its top to appoint 75 metres from the base is 62°?

8) A rafter's angle of elevation with the horizontal is 25°. How far from the corner could a 6-foot man stand up straight?

9) Determine the distance, AB, across the river, given the following measurements.





Answers:
1) a) 60.9 cm b) 15 m c) 52° d) 379 mm e) 12° f) 25.5 km 2) 412 m 3) 2.1 m 4) 21 m 5) 9 m 6) 5.5 ft 7) 141.1 cm 8) 12.9 ft 9) 373 m