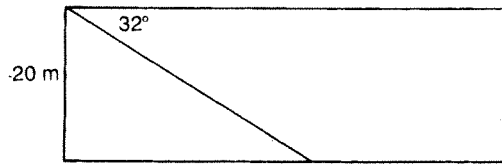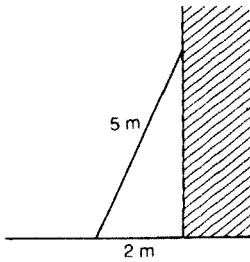# Right-Angle Problems

1. A building 104 m high casts a shadow 156 m long. Determine the angle of elevation for the sun.

Ans: 33.7^0

2. The foot of a ladder 5 m long is 2 m from the building. Determine the angle the ladder makes with the ground.

Ans: 66.4^0

3. From an airplane 420 m above the ground, the angle of depression of the end of the runway is 32^0. How far is the end of the runway along the ground?

Ans: 672.1 m

4. A communications tower 200 m high is to be secured using guy wires making angles of 50^0 and 65^0 as shown in the diagram. If there are 4 wires in total and an extra 4 m is required to fasten each wire, how much wire in total is required?

Ans: 735.6 m
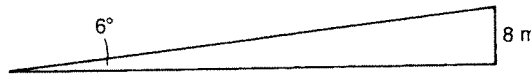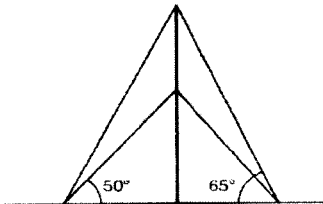
5. The grade on a hill drops 8 m with a 6^0 angle of descent. Determine the length of the hill long the slope.

Ans: 76.5m

6. A tree casts a 38.5 m shadow when the angle of elevation of the sun is 54.6^0.

   a) What is the height of the tree?   Ans: 54.2 m
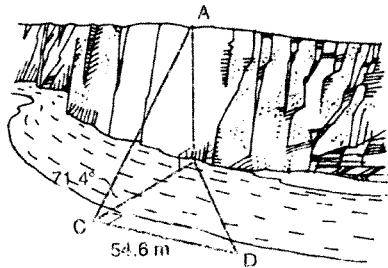
   b) How long will the shadow be when the angle of elevation is 18.2^0?   Ans: 164.9 m

7. Use the diagram below to determine the height of the cliff.

Ans: 125.4 m

A

71.4°

C

54.6 m   D

8. Two buildings are 14.7 m apart. From the top of the taller building, the angles of depression to the top and bottom of the second building are 27.5^0 and 63.8^0.

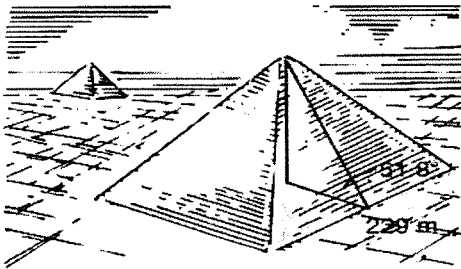Determine the heights of the two buildings   Ans: 22.2 m & 29.9 m

9. In 1 min, an air craft descending at and angle of depression of 12^0 travels 1800 m along its line of flight. How much altitude is lost by the aircraft?

Ans: 374.2 m

10a. Use the diagram below to determine the height of the pyramid.

Ans: 145.5 m

61.8°

220 m

10b. What is the angle of elevation from a corner of the base?

Ans: 41.9^0