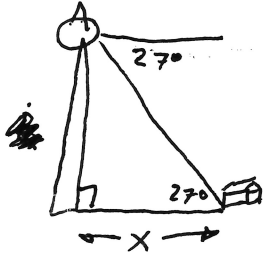


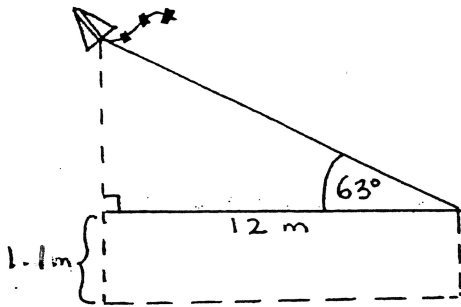
PROBLEM SOLVING WITH TRIGONOMETRY

For the following word problems, include a **diagram** of a triangle with all information labeled, show **all steps** neatly, and write a final **concluding statement**. Round all answers to **one decimal place**.

1. A fire tower is 75 m high. From the top of the tower, the angle of depression to a cabin is 27° . Find the distance from the cabin to the tower.



2.



a) Find the length of string attached to the kite.

b) How high is the kite?

3. A wheelchair ramp at the entrance to a public library rises 0.8 metres over a horizontal distance of 2.7 m.

Diagram

(a) At what angle is the ramp to the ground?

(b) How long is the ramp?

Answers: (1) 147.2 m (2) a) 26.4 m b) ~~15.3 m~~ 24.7 m (3) a) 16.5° b) 2.8 m (4) 324.2 m
 (5) 9.0° (6) 25.1 m (7) 67.4° , 22.6° (8) 4.6 m

4. The Chrysler Building in New York casts a shadow that is 187.2 m long when the sun's rays make an angle of 60° with the ground. How high is the Chrysler Building?
5. A mountain railway track in B.C. rises 31.68 metres in 200 metres of track length. Calculate the angle of the slope of the track.
6. An escalator rises 9 metres vertically and makes an angle of 21° with the horizontal. What is the length of the sloping escalator?
7. Find the size of the angles of a right angle triangle with sides 5 cm, 12 cm, and 13 cm. (Hint: Which side has to be the hypotenuse and which angle has to be 90° ?)
8. The angle of elevation of the top of a flagpole, from a point 10 m from the base of the flagpole and 1 m above the ground, is 70° . Find the height of the flagpole.

