

DO ALL WORK ON ANOTHER PAPER. DRAW A PICTURE FOR EACH ONE!

1. To calculate the height of a tree, Marie measures the angle of elevation from a point A to be 34° . She measures her distance to be 8 m from the base of the tree. How high is the tree to the nearest tenth of a meter?
2. A building 14.5 m tall casts a shadow of 11.4 m along the level ground. At what angle do the rays of the sun hit the ground (to the nearest degree)?
3. A 5.2 m ladder leans against a wall. The bottom of the ladder is 1.9 m from the wall. What angle does the ladder make with the ground (to the nearest degree)?
4. A kite is 33 m above the ground. The kite string makes an angle of 38° with the ground. Assuming that the string is taut, how much string is out (to the nearest tenth)?
5. A balloonist records her altitude as 1208 meters. At the same time she measures the angle of depression of the landing spot to be 17° . How far away, to the nearest meter, is the landing spot from a point on the ground vertically below the balloon?
6. As it leans against a building, an 8 meter ladder makes an angle of 62° with the ground. How far is the bottom of the ladder from the base of the building (to the nearest tenth of a meter)?
7. In order to anchor better your TV satellite dish you decide to attach a wire from its top to the ground. The top is at a height of 3.1 meters. For best results, you are told that the angle between the wire and the ground should be 58° . You decide the wire will need an extra 1.2 meters for fastening the wire to the dish and to the ground. How long a wire do you need to buy, correct to 1 decimal place?
8. Safety rules indicate that a ladder placed against a building should never be further away from the building than $\frac{1}{4}$ of the ladder length being used. Find the least angle, correct to 1 decimal place, between the ground and a ladder according to safety rules.
9. The tallest free-standing structure in the world is the 553 meter high CN Tower in Toronto. What will be the length of the shadow of the tower, correct to the nearest meter, on a day that the angle of elevation of the sun is 50° ?
10. The gondola ski lift at Whistler Mountain in BC has a length of 2128 meters. The angle between the horizontal and the gondola cable is 17.62° . Find the vertical rise of the gondola lift, correct to the nearest meter.