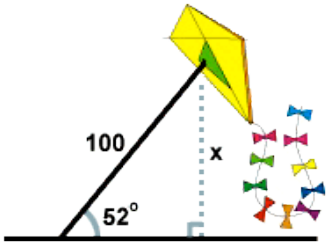
Angle of Elevation & Depression Worksheet/Scavenger Hunt

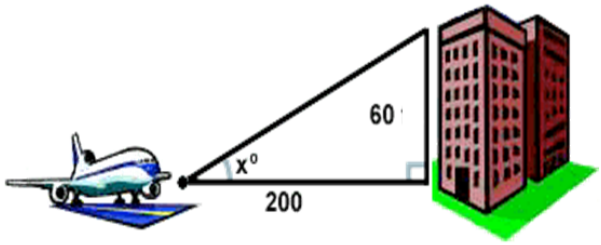
Draw a picture for each. Find all values to the nearest tenth. Follow directions on the board and plug answer in the above table.

1. A man flies a kite with a 100 foot string. The angle of elevation of the string is 52 °. How high off the ground is the kite?



2. From the top of a vertical cliff 40 m high, the angle of depression of an object that is level with the base of the cliff is 34º. How far is the object from the base of the cliff?

3. An airplane takes off 200 feet in front of a 60 feet building. At what angle of elevation must the plane take off in order to avoid crashing into the building? Assume that the airplane flies in a straight line and the angle of elevation remains constant until the airplane flies over the building.



4. A 14 foot ladder is used to scale a 13 foot wall. At what angle of elevation must the ladder be situated in order to reach the top of the wall?

5. A pilot flying at an altitude of 12,000 ft sights two airports directly in front of him. The angle of depression to one airport is 78 degrees, and the angle of depression to the second airport is 19 degrees. What is the distance between the two airports? Round to the nearest foot. (Hint: See p.564 8.4 Example #4 for help.)

6. Tom and Sam are on the opposite sides of a tower of 160 meters height. They measure the angle of elevation of the top of the tower as 40° and 55° respectively. Find the distance between Tom and Sam.

7. A man on the deck of a ship is 13 ft above water level. He observes that the angle of elevation of the top of a cliff is 40° and the angle of depression of the base is20°. Find the distance of the cliff from the ship and the height of the cliff if the base of the cliff is at sea level.

8. The angle of elevation of the top of a cliff from the point Q on the ground is 30°. On moving a distance of 20 m towards the foot of the cliff the angle of elevation increases to x^o. If the height of the cliff is 17.3 m, then find x^o.

9. From the top of a spire of height 50 ft, the angles of depression of two cars on a straight road at the same level as that of the base of the spire and on the same side of it are 25° and 40°. Calculate the the distance between the two cars.

10. A ramp is needed to allow vehicles to climb a 2 foot wall. The angle of elevation in order for the vechicles to safely go up must be 30 degrees or less, and the longest ramp available is 5 feet long. Can this ramp be used safely?