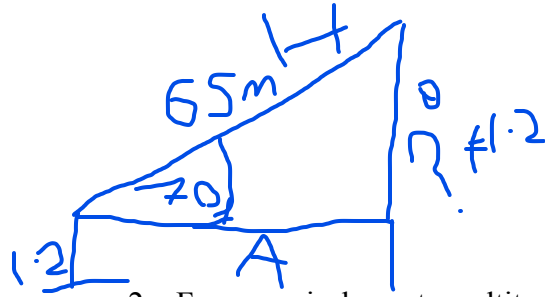


Angle of Elevation & Depression Trig Worksheet***Draw and label a picture for each problem**

1. Brian's kite is flying above a field at the end of 65 m of string. If the angle of elevation to the kite measures 70° , and Brian is holding the kite 1.2 m off the ground. How high above the ground is the kite flying?

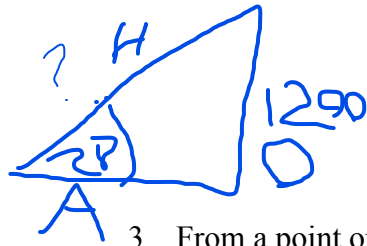


$$S = \frac{O}{H} \rightarrow \sin 70 = \frac{O}{65}$$

$$O = 65 \sin 70$$

$$? = 94(65) = 61.1 + 1.2 = 62.3 \text{ m}$$

2. From an airplane at an altitude (height) of 1200 m, the angle of depression to a rock on the ground measures 28° . Find the distance from the plane to the rock.



$$S = \frac{O}{H} \quad H = \frac{1200}{\sin 28} \rightarrow 0.469$$

$$H = \frac{O}{S} \quad H = 2558.69 \text{ m}$$

3. From a point on the ground 12 ft from the base of a flagpole, the angle of elevation of the top of the pole measures 53° . How tall is the flagpole?

$$12 \text{ ft} = 3.6576 \text{ m}$$

$$\tan = \frac{O}{A}$$

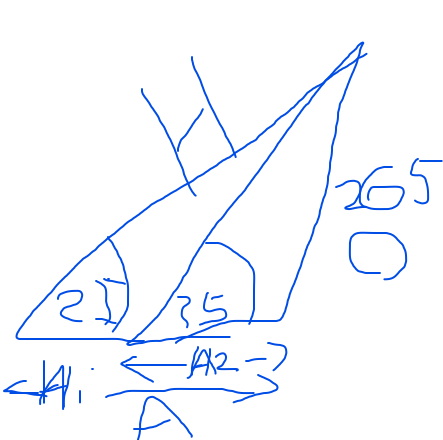
$$3.6575 \tan(53) = O$$

$$3.6576(1.327) = O$$

$$\text{flagpole} = 4.85 \text{ m or } 15.91 \text{ ft}$$



4. From a plane flying due east at 265 m above sea level, the angles of depression of two ships sailing due east measure 35° and 25° . How far apart are the ships?



$$A1 - A2 = d$$

$$\tan = \frac{O}{A}$$

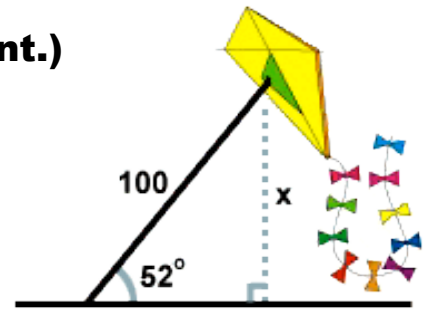
$$\begin{aligned} h1 &= 265 / \tan(25) \\ h1 &= 265 / 0.466 \\ h1 &= 568.67 \text{ m} \end{aligned}$$

$$\begin{aligned} h2 &= 265 / \tan(35) \\ h2 &= 265 / 0.7 \\ h2 &= 378.57 \text{ m} \end{aligned}$$

$$\begin{aligned} d &= h1 - h2 \\ d &= 568.67 - 378.57 \\ d &= 190.1 \text{ m} \end{aligned}$$

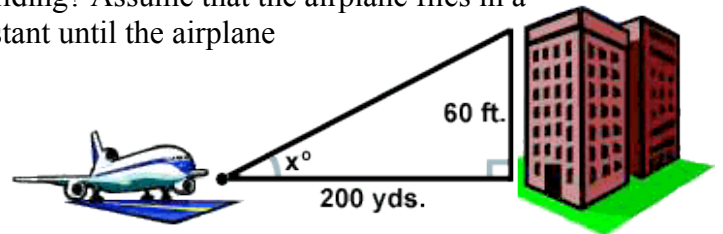
Angle of Elevation & Depression Worksheet (Cont.)**Find all values to the nearest tenth.**

5. 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?



6. 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 34° . How far is the object from the base of the cliff?

7. An airplane takes off 200 yards in front of a 60 foot 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.



8. 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?
9. A person stands at the window of a building so that his eyes are 12.6 m above the level ground. An object is on the ground 58.5 m away from the building on a line directly beneath the person. Compute the angle of depression of the person's line of sight to the object on the ground.
10. A ramp is needed to allow vehicles to climb a 2 foot wall. The angle of elevation in order for the vehicles to safely go up must be 30° or less, and the longest ramp available is 5 feet long. Can this ramp be used safely?

