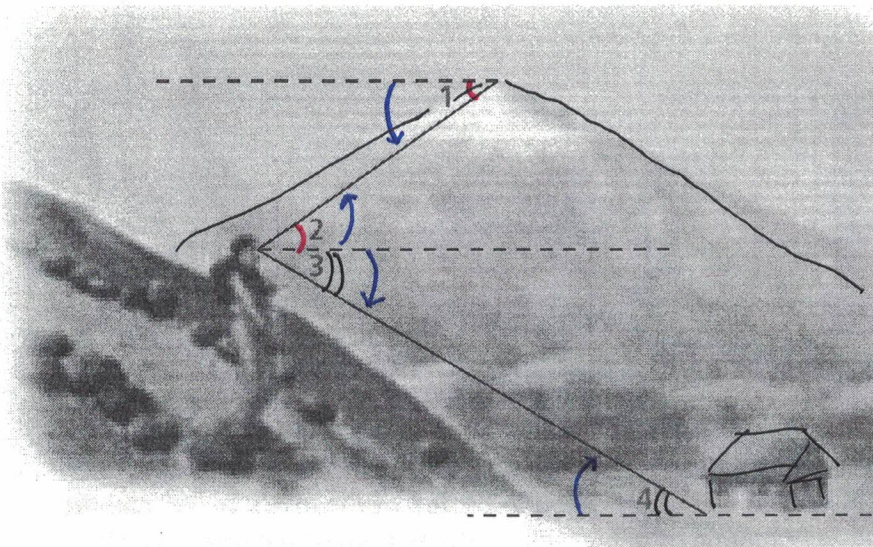


- angle of elevation → an angle between a horizontal line and a line of sight where the angle is ABOVE the horizontal line.
- angle of depression → an angle between a horizontal line and a line of sight where the angle is BELOW the horizontal line.

Couple of Things to Notice:

- 1.) The two horizontal lines are parallel to each other and the angle of elevation and depression are congruent. Angles that do this are called Alternate Interior Angles.
- 2.) If you draw in a vertical line, then a Right Triangle is formed.

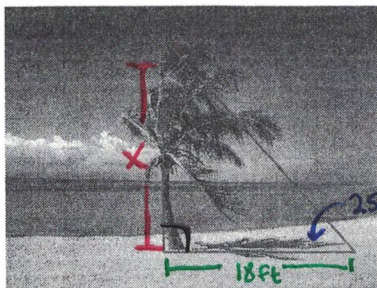
Example 1: Describe each angle as it relates to the situation shown.



- Angle 1: Angle of Depression from the peak to hiker
- Angle 2: Angle of Elevation from the hiker to the peak
- Angle 3: Angle of Depression from the hiker to the cabin
- Angle 4: Angle of Elevation from the cabin to the hiker

Example 2: Label each diagram and then complete each word problem. Round to tenth place.

a.) A palm tree casts a shadow of 18 feet long. The angle of elevation of the sun is  $25.7^\circ$ . Find the height of the palm tree.



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

$$\tan 25.7 = \frac{x}{18}$$

$$x = 18 \tan 25.7$$

$$x \approx 8.7$$

Palm tree is 8.7 ft tall

b.) A sign on a roadway at bottom of a mountain road indicates that the road will incline  $10.5^\circ$  with the ground. The altitude for a car ascending up the mountain road is 3,850 ft. Find the length of the mountain road in miles.

