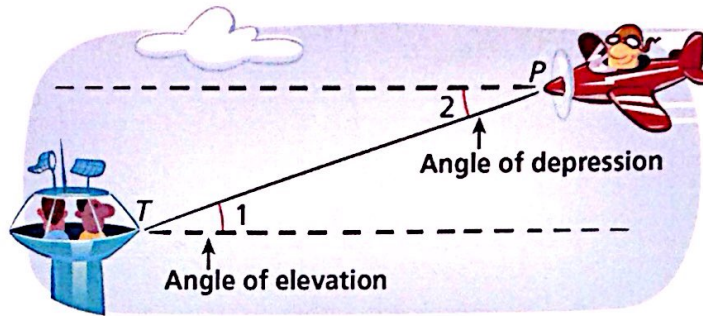


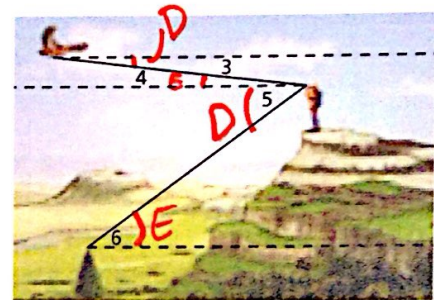
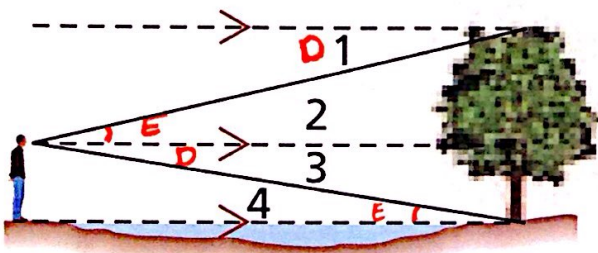
Angles of Elevation and Depression Notes

An **angle of elevation** is the angle formed by a horizontal line and a line of sight to a point **above** the line. In the diagram, $\angle 1$ is the angle of elevation from the tower T to the plane P .

An **angle of depression** is the angle formed by a horizontal line and a line of sight to a point **below** the line. $\angle 2$ is the angle of depression from the plane to the tower.

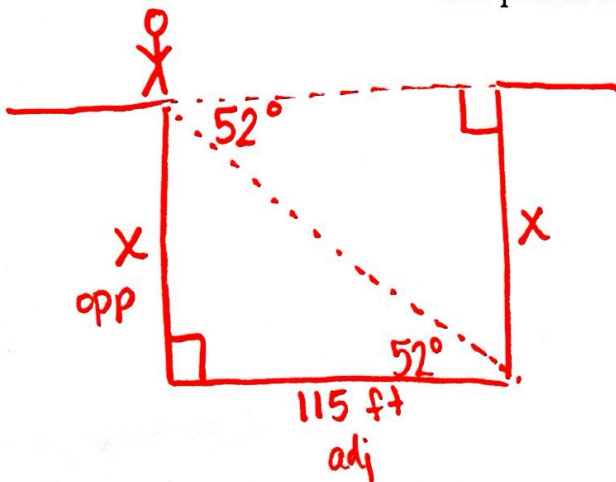


**Alt. Int. Angles are congruent*



Example 1

An ice climber stands at the edge of a crevasse that is 115 ft wide. The angle of depression from the edge where she stands to the bottom of the opposite side is 52° . How deep is the crevasse at this point? Round to the nearest foot.

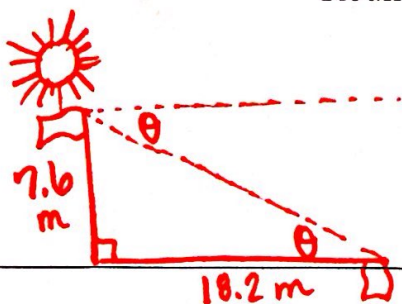


$$\frac{\tan 52^\circ}{1} = \frac{x}{115}$$

$$x = 147 \text{ feet deep}$$

Example 2

Find the angle of elevation of the sun when a 7.6-meter flagpole casts a 18.2-meter shadow. Round to the nearest tenth of a degree.



$$\tan \theta = \frac{7.6}{18.2}$$

$$\theta = \tan^{-1} \left(\frac{7.6}{18.2} \right)$$

$$\theta = 22.7^\circ$$