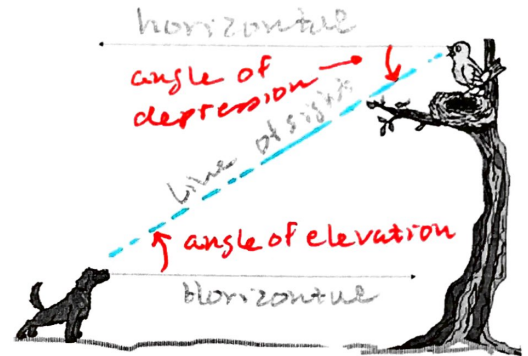


Core Concept

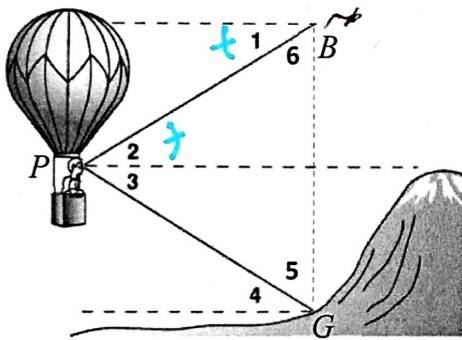
Angles of Elevation and Depression:

The Angle of Elevation from the dog to the bird is the angle between the line of sight and horizontal.

The Angle of Depression from the bird to the dog is the angle between the line of sight and horizontal.



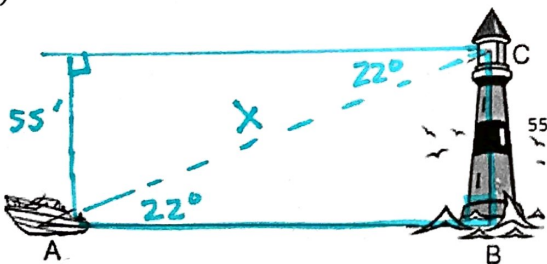
1)



- $\angle 1$ is the angle of depression from B to P.
- $\angle 2$ is the angle of elevation from P to B.
- $\angle 3$ is the angle of depression from P to G.
- $\angle 4$ is the angle of elevation from G to P.

Remember...for angles of elevation or depression one side is always **HORIZONTAL!**

2)



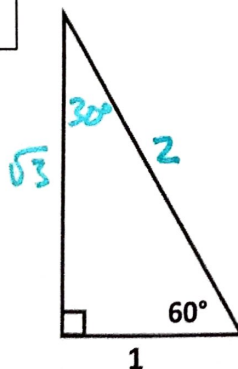
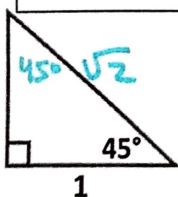
A person in the lighthouse sights a boat in the distance with a 22° angle of depression. If the person in the lighthouse is 55 feet above the water, determine the line of sight distance from the person in the lighthouse to the boat.

$$\sin(22^\circ) = \frac{55}{x}$$

Core Concept

Using Special Right Triangles to find exact trigonometric values:

Fill in missing side lengths on \triangle 's



Find each value in simple radical form. No decimals.

| | | |
|--|--|--|
| a) $\sin(30^\circ)$ $\frac{1}{2}$ | b) $\tan(45^\circ)$ $1 = 1$ | c) $\cos(60^\circ)$ $\frac{1}{2}$ |
| d) $\tan(30^\circ)$ $\frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$ | e) $\cos(45^\circ)$ $\frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$ | f) $\cos(30^\circ)\sin(60^\circ)$ $\frac{\sqrt{3}}{2} \cdot \frac{\sqrt{3}}{2} = \frac{3}{4}$ |