

5. Emily is standing on a bridge, looking down at a boat on the river. She knows that the bridge is 12m high, and estimates that the angle of depression between her and the boat is 55° . How far is the boat from the base of the bridge, to the nearest tenth of a meter?

Angle of depression is the angle between a horizontal line and the line joining the observer's eye to some object beneath the horizontal line.

Let x be the distance from the base of the bridge to the boat

Since the horizontal lines are parallel, the angles of elevation and depression are equal in measure.

$$\sin 55^\circ = \frac{12}{x}$$
$$x = \frac{12}{\sin 55^\circ}$$
$$x = 36,4 \text{ m}$$

The distance from the base of the bridge to the boat is 36,4 m.