

Date: _____

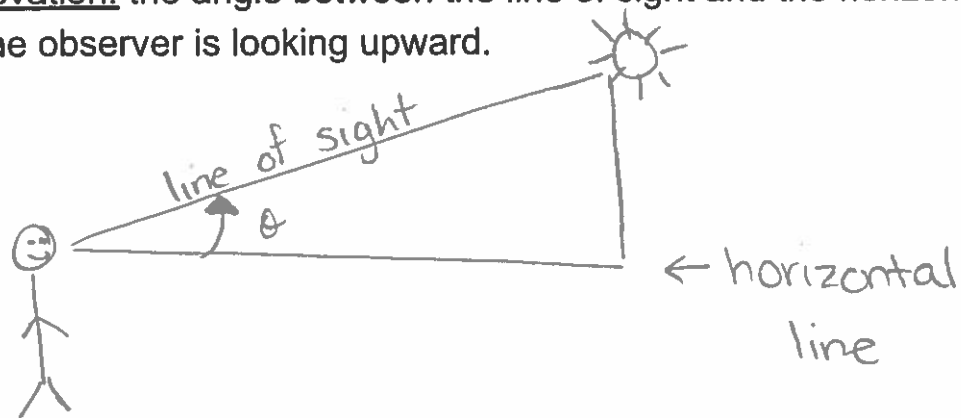
Name: Key

3.2 Sine and Cosine Ratio

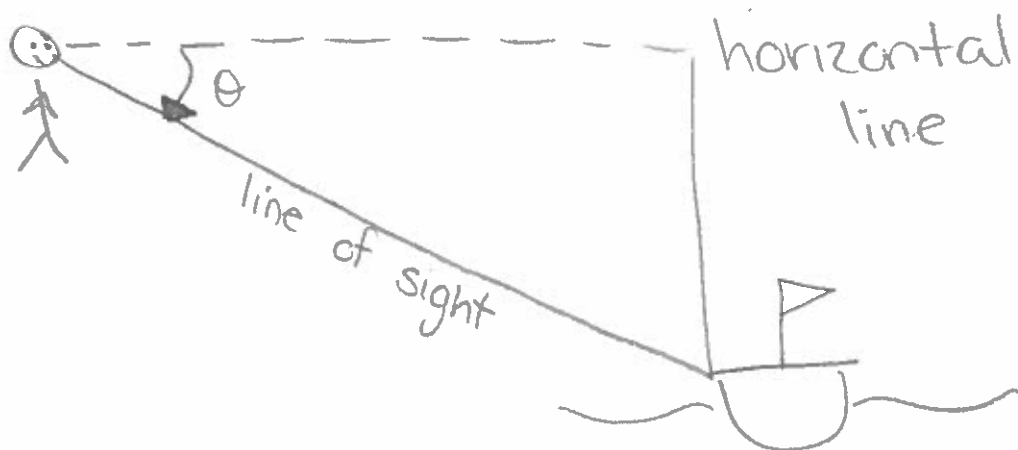
Extra Examples

Definitions:

Angle of Elevation: the angle between the line of sight and the horizontal line when the observer is looking upward.



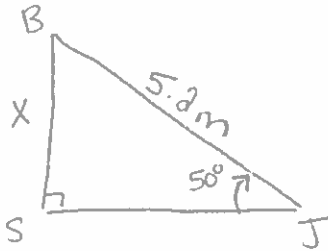
Angle of Depression: the angle between the line of sight and the horizontal line when the observer is looking downward.



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1. John and Sam were passing their soccer ball back and forth. However, John had noticed there was a bird above Sam's head. Where John was standing, the bird was at an angle of elevation of 50° . The bird was also at a distance of 5.2 m from John. At what altitude was the bird above Sam?



→ how tall/high something is.

↳ hypo. but may assume adjacent.

- ① What are we finding?

opp.

- ② What trig ratio?
Sine (SOH)

- ③ Solve.

$$\sin \theta = \frac{O}{H}$$

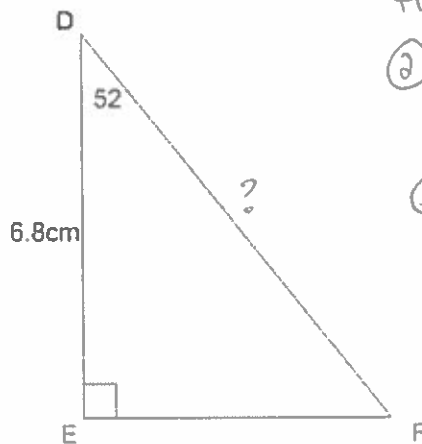
$$5.2m(\sin(50^\circ)) = \left(\frac{x}{5.2m}\right) 5.2m$$

$$5.2m(\sin(50^\circ)) = x$$

$$\boxed{3.983m = x}$$

the bird is 3.98m above Sam

2. Calculate the length of DF to the nearest tenth of a cm.



- ① what are we trying to find? - hypo.

- ② What trig ratio?
- cos (CAH)

- ③ Solve.

$$\cos \theta = \frac{A}{H}$$

$$DF(\cos(52^\circ)) = \left(\frac{6.8cm}{DF}\right) DF$$

$$\frac{DF(\cos(52^\circ))}{\cos(52^\circ)} = \frac{6.8cm}{\cos(52^\circ)}$$

$$DF = \frac{6.8cm}{\cos(52^\circ)} = 11.045 \dots$$

$$\boxed{= 11}$$