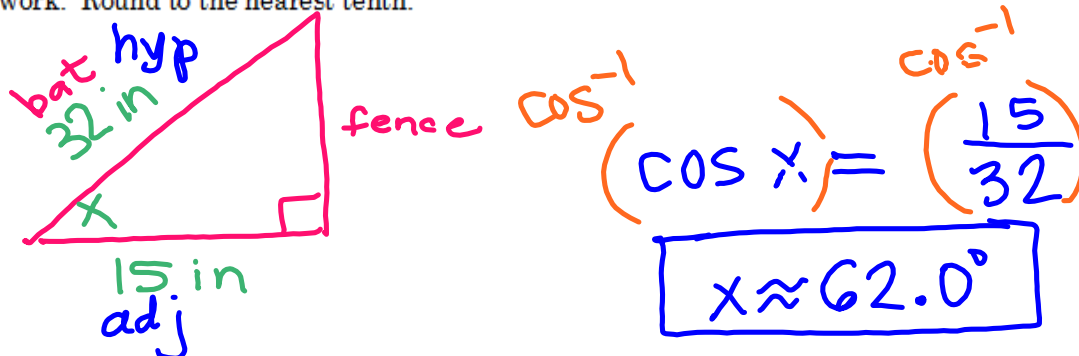


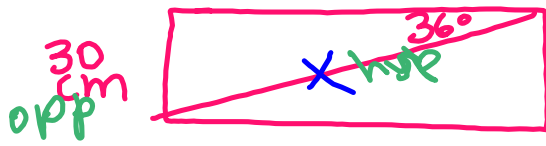
7.5 - 7.7 Review



1. A 32 inch bat is leaning against a fence. If the bat is 15 inches away from the base of the fence, what angle is formed between the ground and the bat? You must include a picture and show all work. Round to the nearest tenth.



2. A rectangle is 30 centimeters wide. The diagonal makes an angle of 36° with the longer side. Find the length of the diagonal. You must include a picture and show all work. Round to the nearest tenth.

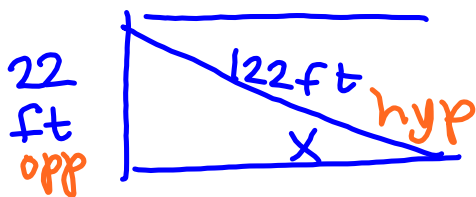


$$x \cdot \sin 36^\circ = \frac{30}{x} \cdot x$$

$$\frac{x \cancel{\sin 36^\circ}}{\cancel{\sin 36^\circ}} = \frac{30}{\sin 36^\circ}$$

$$x \approx 51.0 \text{ cm}$$

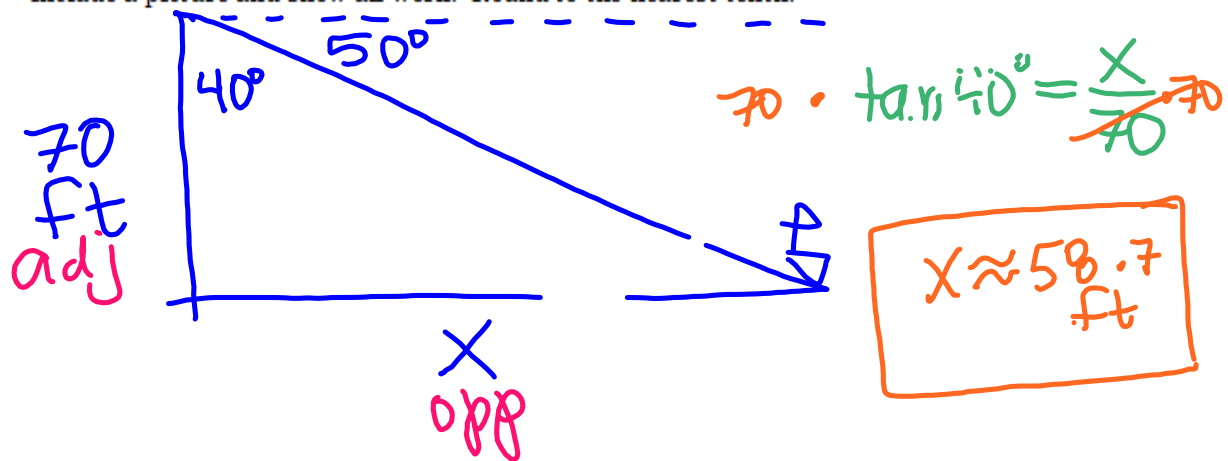
3. Each level of a parking garage is 22 feet apart. Each ramp to a level is 122 feet long. Find the measure of the angle of elevation for each ramp. You must include a picture and show all work. Round to the nearest tenth.



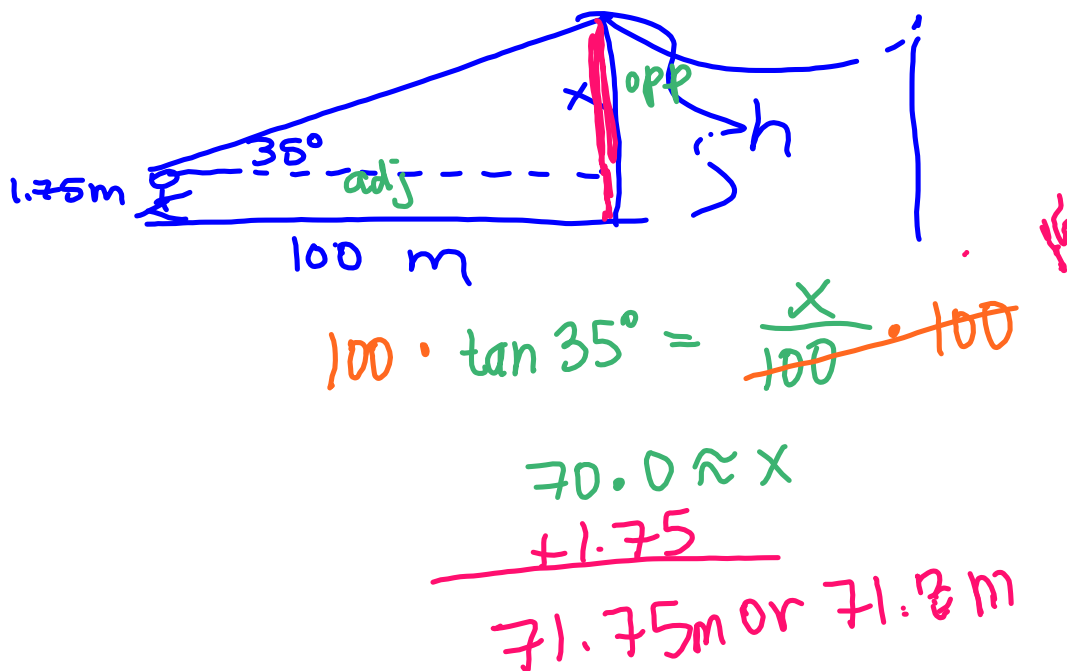
$$\sin^{-1}(\sin x) = \sin^{-1}\left(\frac{22}{122}\right)$$

$$x \approx 10.4^\circ$$

4. A person at the top of a lighthouse sights a boat in the water. The angle of depression is 50° . If the lighthouse is 70 feet high, find the distance from the base of the lighthouse to the boat. You must include a picture and show all work. Round to the nearest tenth.



5. A surveyor is 100 meters from a bridge. The angle of elevation to the top of the bridge is 35° . If the surveyor's instrument is 1.75 meters above the ground, find the height of the bridge. You must include a picture and show all work. Round to the nearest tenth.



6. Find the measure of each angle to the nearest tenth.

$$\cos^{-1}(\cos X) = \cos^{-1}(0.9541)$$

$$m\angle X \approx 17.4^\circ$$

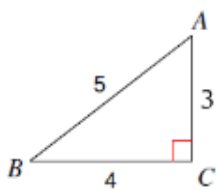
$$\tan^{-1}(\tan Y) = \tan^{-1}(4.8632)$$

$$m\angle Y \approx 78.4^\circ$$

$$\sin^{-1}(\sin Z) = \sin^{-1}(0.4730)$$

$$m\angle Z \approx 28.2^\circ$$

7. Use the diagram to answer the following questions.

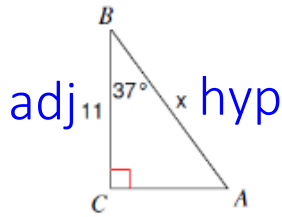


$$\text{a) } \sin A = \frac{4}{5}$$

$$\text{b) } \sin B = \frac{3}{5}$$

$$\text{c) } \cos A = \frac{3}{5}$$

8. Find each missing side measure. Round to the nearest tenth. SHOW ALL WORK.

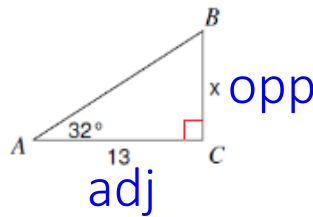


a)

$$x \cdot \cos 37^\circ = \frac{11}{x} \cdot x$$

$$\frac{x \cos 37^\circ}{\cos 37^\circ} = \frac{11}{\cos 37^\circ}$$

$$x \approx 13.8 \text{ units}$$

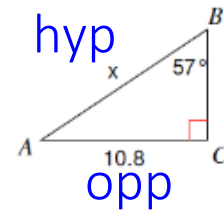


b)

$$13 \cdot \tan 32^\circ = \frac{x}{13} \cdot 13$$

$$13 \tan 32^\circ = x$$

$$x \approx 8.1 \text{ units}$$



c)

$$x \cdot \sin 57^\circ = \frac{10.8}{x} \cdot x$$

$$\frac{x \sin 57^\circ}{\sin 57^\circ} = \frac{10.8}{\sin 57^\circ}$$

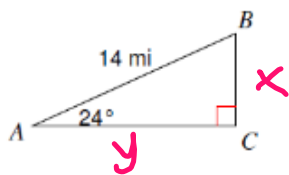
$$x \approx 12.9 \text{ units}$$

9. Solve each right triangle below. Round to the nearest tenth. SHOW ALL WORK

$$14 \cdot \cos 24^\circ = \frac{y}{14} \cdot 14 \quad 14 \cdot \sin 24^\circ = \frac{x}{14} \cdot 14$$

$$y \approx 12.8$$

$$x \approx 5.7$$



a)

$$m\angle A = 24^\circ \quad AB = 14 \text{ mi}$$

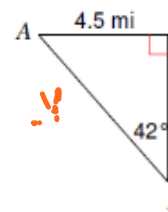
$$m\angle B = 66^\circ \quad BC \approx 5.7 \text{ mi}$$

$$m\angle C = 90^\circ \quad AC \approx 12.8 \text{ mi}$$

$$\sin 42^\circ = \frac{4.5}{y}$$

$$y = \frac{4.5}{\sin 42^\circ}$$

$$y \approx 6.7$$



b)

$$m\angle A = 48^\circ \quad AB = 6.7 \text{ mi}$$

$$m\angle B = 42^\circ \quad BC \approx 5.0 \text{ mi}$$

$$m\angle C = 90^\circ \quad AC = 4.5 \text{ mi}$$

$$\tan 42^\circ = \frac{4.5}{x}$$

$$x \approx 5.0$$