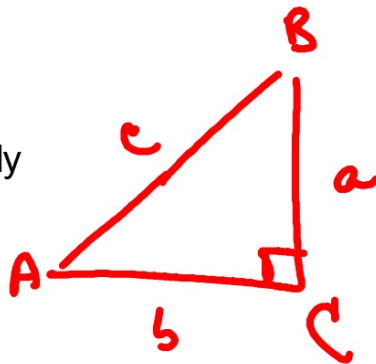


Trig 5.4

Use trigonometry to find
measure in right
triangles
Use trig to find
measurements indirectly



Triangle nomenclature

adjacent

opposite

hypotenuse

Pythagorean theorem

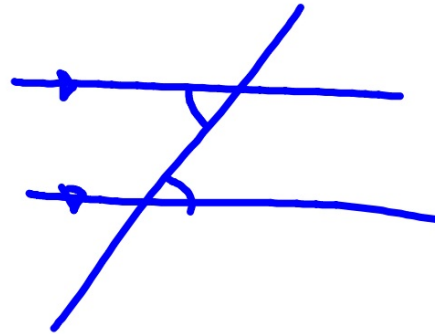
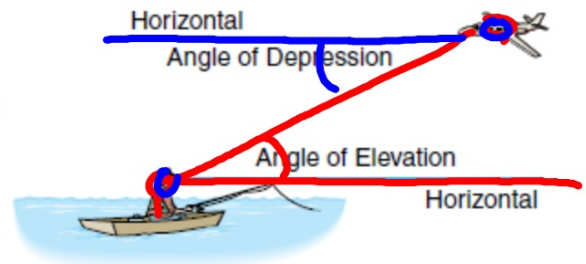
sine

cosine

tangent

Handy angles Tues.

Geometry Ch. 13

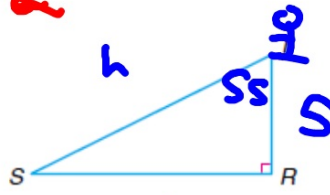


$\frac{S}{h} = \frac{C}{t}$ ~~$\frac{T}{a}$~~

1. State which trigonometric function you would use to solve each problem.

- a. If $S = 42^\circ$ and $ST = 8$, find RS .
- b. If $T = 55^\circ$ and $RT = 5$, find RS .
- c. If $S = 27^\circ$ and $TR = 7$, find TS .

tan



?

~~$\cos 42 = \frac{t}{8}$~~

$t = 5.9$

~~$\tan 55 = \frac{t}{5}$~~

$t = 7.1$

cah

1 If $P = 35^\circ$ and $r = 14$, find q .

$$\cos \frac{a}{h}$$

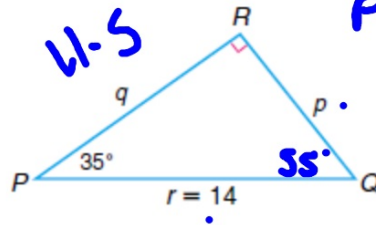
$$\cos 35 = \frac{q}{14}$$

$$q = 11.5$$

Solve

$$\sin 35 = \frac{p}{14}$$

$$p = 8.0$$



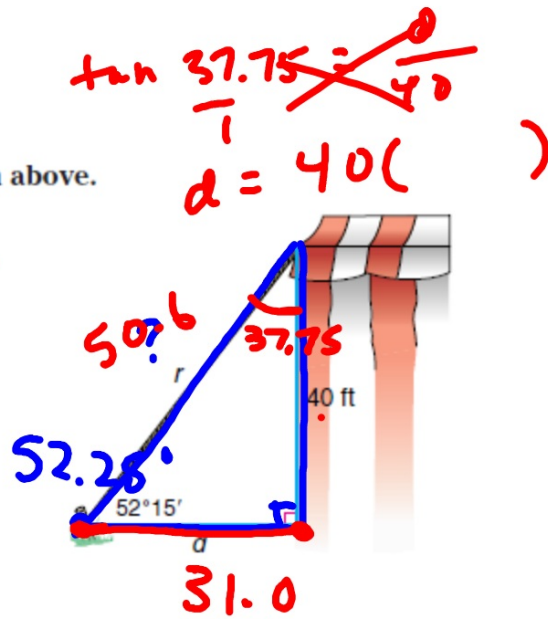
$$\angle Q = 55$$

$$p = 8$$

2 ENTERTAINMENT Refer to the application above.

- a. If the angle that the rope makes with the level ground is $52^\circ 15'$, how long is the rope?
- b. What is the distance between the bottom of the tent and the stake?

$$\sin 52.25 = \frac{40}{r}$$
$$r \cdot \sin 52.25 = 40$$
$$r = 50.6$$

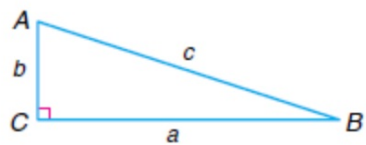


Solve each problem. Round to the nearest tenth.

5. If $b = 13$ and $A = 76^\circ$, find a .

6. If $B = 26^\circ$ and $b = 18$, find c .

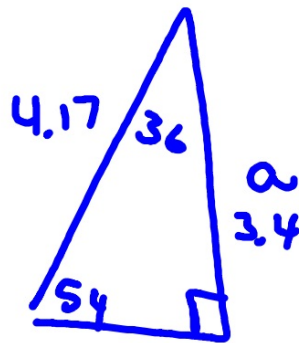
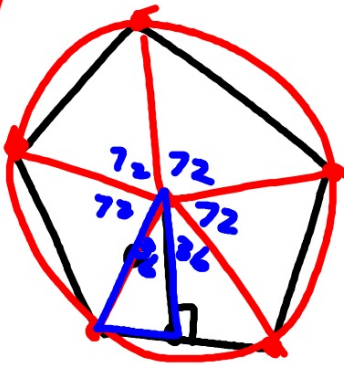
7. If $B = 16^\circ 45'$ and $c = 13$, find a .



apothem (geometry)

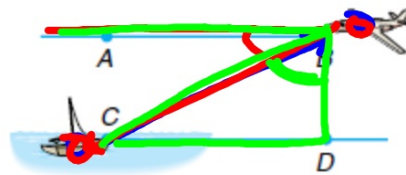
- 3 **GEOMETRY** A regular pentagon is inscribed in a circle with diameter 8.4 centimeters. The *apothem* of a regular polygon is the measure of a line segment from the center of the polygon to the midpoint of one of its sides. Find the apothem of the pentagon.

$$r = 4.17$$



$$\sin 36 = \frac{a}{4.17}$$
$$a = 3.4 \text{ cm}$$

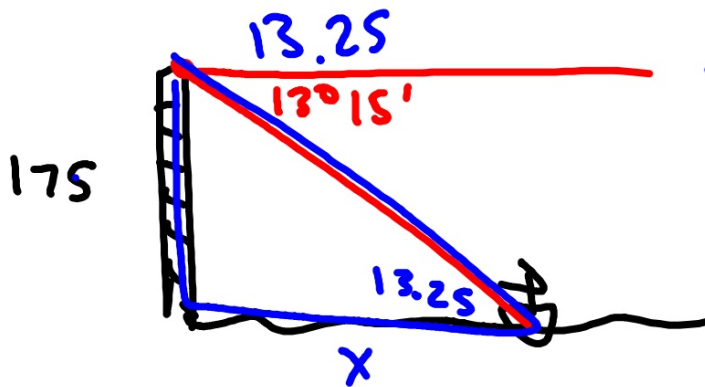
3. Name the angle of elevation and the angle of depression in the figure at the right. Compare the measures of these angles. Explain.



$$\text{elev} = \angle C$$

$$\text{depr} = \angle A$$

9. **Boating** The Ponce de Leon lighthouse in St. Augustine, Florida, is the second tallest brick tower in the United States. It was built in 1887 and rises 175 feet above sea level. How far from the shore is a motorboat if the angle of depression from the top of the lighthouse is $13^\circ 15'$?

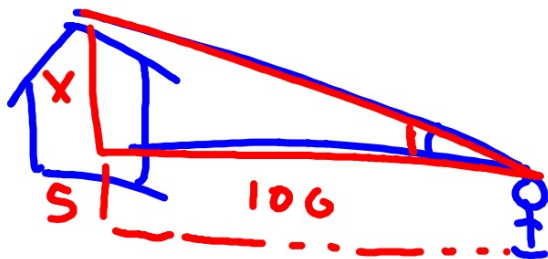


$$\tan 13.25 = \frac{175}{x}$$

$$x (0.2355) = \frac{175}{.2355}$$

$$x = 743 \text{ ft}$$

4. Describe a way to use trigonometry to determine the height of the building where you live.



$$\begin{aligned} &S. 4 \\ &11-210 \\ &+ 20 \end{aligned}$$