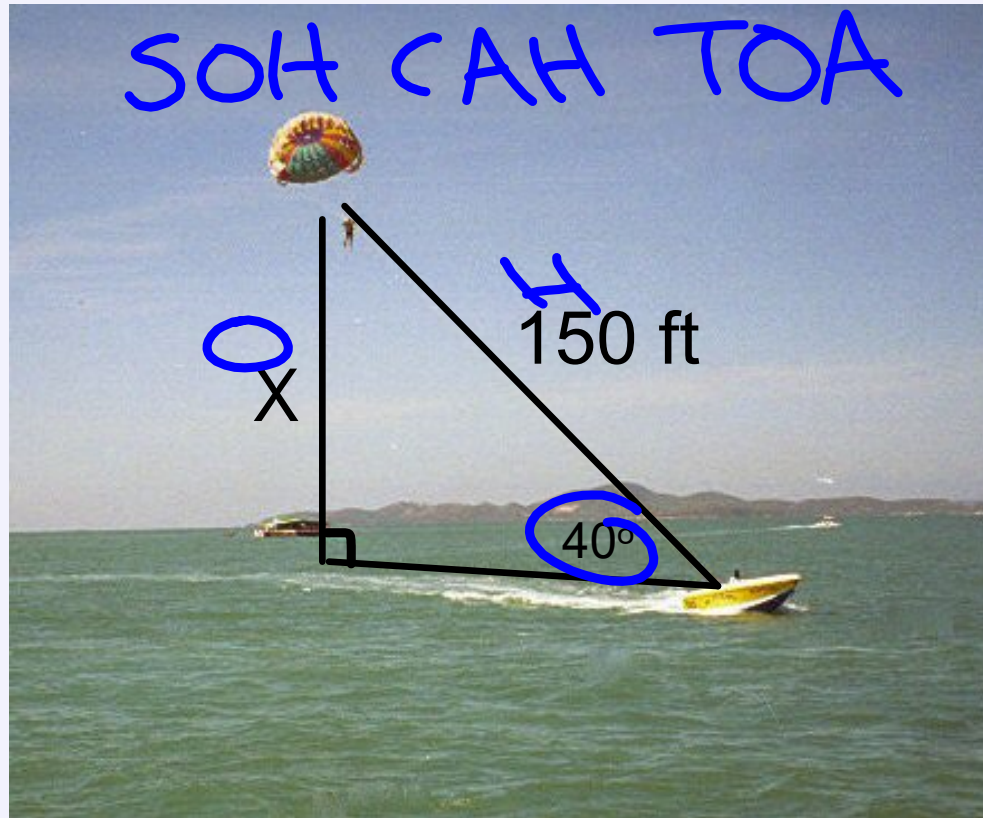


2/10/20 - Warm Up Problem

SOH CAH TOA



A parasailor is being pulled behind a boat by a 150 ft. tow rope. If the angle between the rope and the water is 40° , how high above the water is the parasailor flying?

$$X \approx 96.42 \text{ ft.}$$

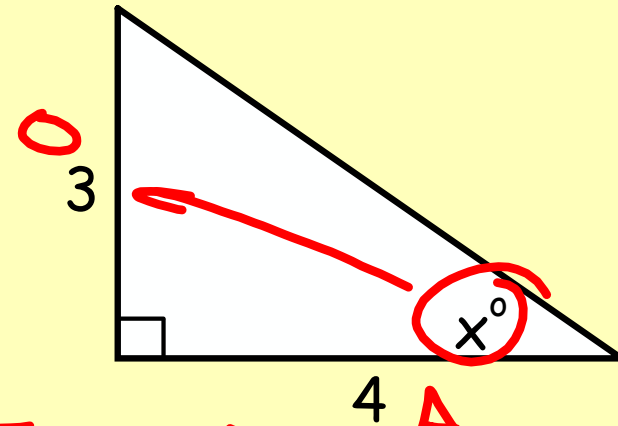
$$\sin(40) = \frac{X}{150}$$
$$X = 150 \cdot \sin(40)$$

Concept 20 - Trigonometry

Goal: use trigonometry to find angle measures

Use the partial trig table to find the measure of x .

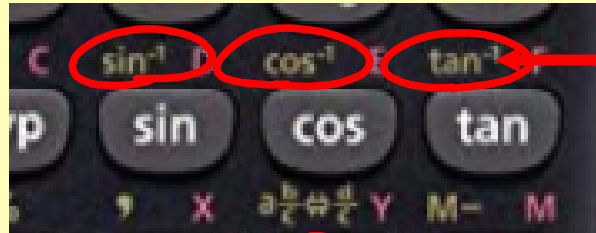
	Sin	cos	tan
31°	.5150	.8572	.6009
32°	.5299	.8480	.6249
33°	.5446	.8387	.6494
34°	.5592	.8290	.6745
35°	.5736	.8192	.7002
36°	.5878	.8090	.7265
37°	.6018	.7986	.7536
38°	.6157	.7880	.7813
39°	.6293	.7771	.8098
40°	.6428	.7660	.8391



$$\tan(x) = \frac{3}{4} = .75$$

Inverse Sine, Cosine, and Tangent

- The inverse sine/cosine/tangent function on a calculator matches up the ratio you have with the correct angle measure



Inverses

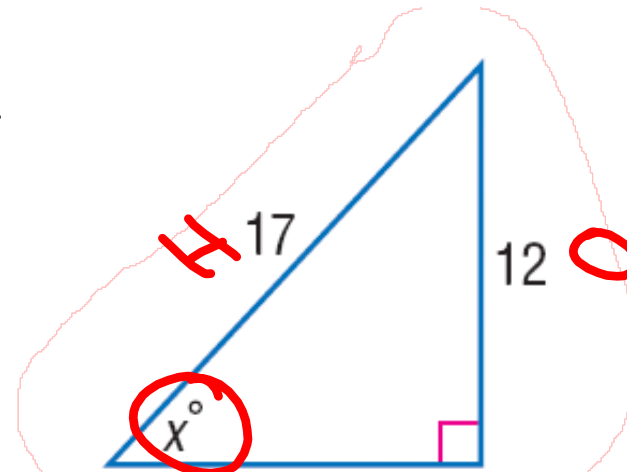
$$\text{Tan}(x) = \frac{3}{4}$$

$$\text{Tan}^{-1}\left(\frac{3}{4}\right) = 36.9^\circ$$

FINDING A MISSING ANGLE MEASURE

1. Locate θ and label sides: O, A, H
2. Decide which ratio you need to use.
 - ratio will contain 2 sides you know
3. Write a trig equation.
 - put in θ or x for the angle
4. Solve the equation.
 - use the inverse to solve

SOH CAH TOA

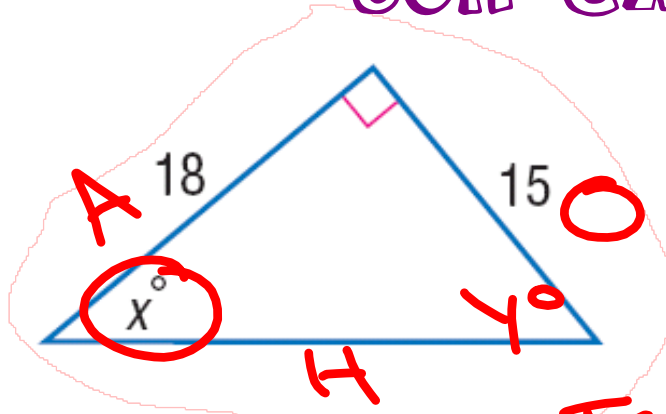


$$\sin(x) = \frac{12}{17}$$

$$\sin^{-1}\left(\frac{12}{17}\right)$$

$$x = 44.9^\circ$$

SOH CAH TOA



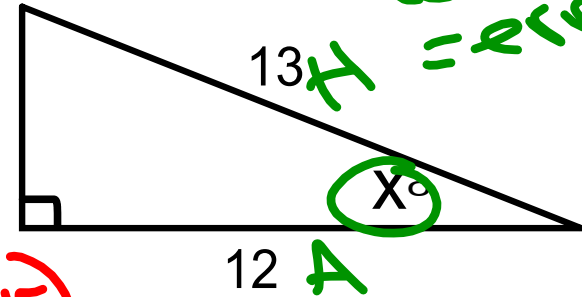
$$\tan(x) = 15/18$$

$$x = \tan^{-1}(15/18)$$

$$x = 39.8^\circ$$

$$y = \tan^{-1}(18/15)$$

$$50.2$$



$$\cos(x) = 12/13$$

$$x = \cos^{-1}(12/13)$$

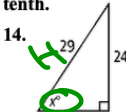
$$x = 22.6^\circ$$

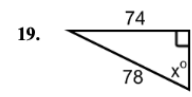
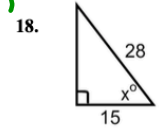
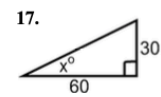
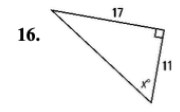
Assignment:

**Concept 20 Worksheet
(14-28)**

FINDING MISSING ANGLE MEASURES

Write and solve a trigonometric equation to find the measure of each angle. Round to the nearest tenth.

14.  $X = 55.9^\circ$
 $\sin(x) = \frac{24}{29}$
 $\sin^{-1}(24/29)$



Write and solve a trigonometric equation to find each side length or angle measure. Round to the nearest tenth.

