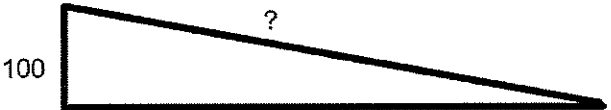SOH CAH TOA
Student/Teacher Practice

Objective: The objective of this lab is to become an expert at using sin, cos, tan, and Pythagorean trig functions to find common angles and lengths of right triangles.
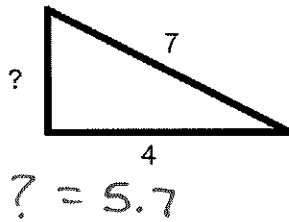
1. All of these trig functions that we will be using here only work with __Right__ triangles.

2. Solve for the "?". Anything that goes into your calculator needs to be shown here.

$$100^2 + 500^2 = ?^2$$
$$\boxed{509}$$

3. Solve for the "?".

$$y^2 + ?^2 = 7^2$$
$$? = \sqrt{7^2 - 4^2}$$
$$? = 5.7$$
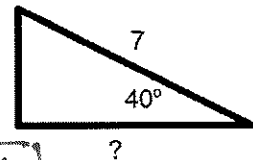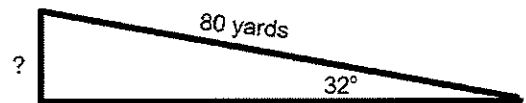
4. Use the space below to solve for each "?" separately.

$$Sin = \frac{opp}{Hyp}$$

$$Sin\theta \cdot Hyp = opp \quad Sin40(7) = \boxed{4.49}$$
$$Cos\theta \cdot Hyp = adj \quad Cos40(7) = \boxed{5.36}$$

5. The sledding hill at Jennerjohn park is 80yards long. If the angle is 32°, how high up are you at the hill?
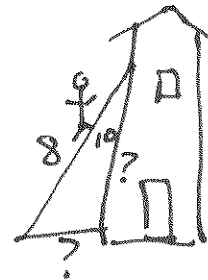
$$Sin\,32°(80) = 42ft$$

6. Your dad climb up an 8ft ladder leaning 10° up against your house.
    a. Draw a picture of this scenario.
    b. How high is he able to reach? $Cos10 \cdot 8 = 7.8ft$
    c. How far away from the house is the base of the ladder.
    $$Sin(10) \cdot 8 = 1.38ft$$

7. Chuck walks 10° north of east for 2 miles reaching the park.
    a. On the drawing to the right, add an x to represent the distance traveled in the x direction.
    b. On the drawing to the right, add an y to represent the distance traveled in the y direction.
    c. How far extra did he walk to the east?
    d. Originally, how far north is the park from Chuck?

    $$Cos(10) \cdot 2 = \boxed{1.96\,miles}$$
    $$Y\,component \quad Sin(10) \cdot 2 = \boxed{0.34\,miles}$$

N

Park

Chuck walks 2 miles

10°

E