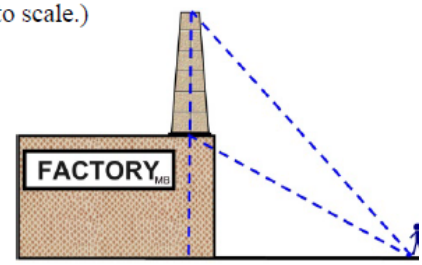
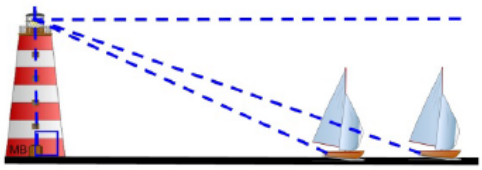
WORKSHEET 8-9R/8-12LAB Double Trig **NAME _____ Section: _____**

Directions: Read carefully. Label the diagrams, set up the trigonometric equations, and show work. Be careful not to round until you have determined your final answer. (Diagrams are not to scale.)

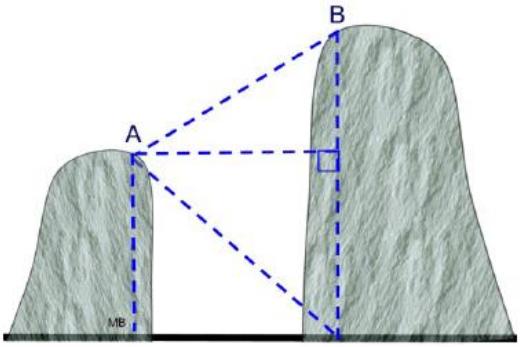
1. From a point on the ground 300 feet from the base of a factory, the angle of elevation of the top of the factory is 38°, and the angle of elevation of the top of the smokestack is 52°. Find the height of the smokestack to the *nearest foot.*



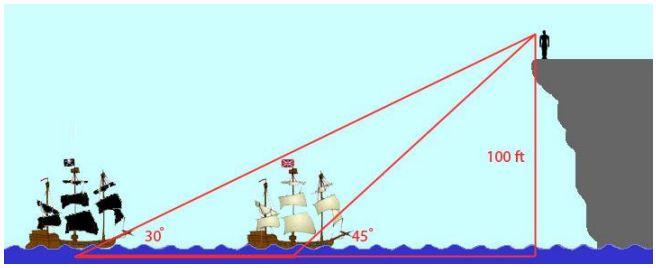
2. An observer from the top of a lighthouse 370 feet above sea level sees two sailboats in the water. The angels of depression to the boats are 12° and 10°. How far apart are the boats, to the *nearest foot* ?



3. Two vertical cliffs are on opposite sides of a 90 foot wide river. From point A at the top of the shorter cliff, the angle of elevation of the top of the other cliff (B) is 28° and the angle of depression to the bottom is 38°. Find the height of each cliff, to the *nearest foot.*

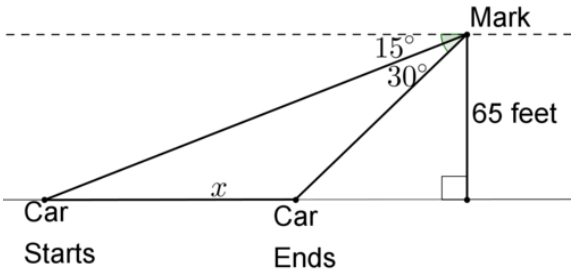


4. A pirate ship is in hot pursuit of the British ship. A patriot standing on top of a 100 ft cliff can see both ships with an angle of depression of 30° to the pirate ship and 45° to the British ship. What is the distance between the ships to the nearest tenth of a foot?



5. A policeman located at the mark that is 65 feet from a parallel road is tracking a car's speed. The initial angle of depression to the car is 15°. The ending angle of depression is 45°.

A. Find the distance *x* the car travelled to the nearest tenth of a foot.
B. If the car travelled *x* feet in 3 seconds and the speed limit is 30 miles per hour, should the policeman issue a ticket to the driver? (5280 ft = 1 mile)



Extra Credit: (Do on separate paper and submit)
Jack and Jill are on either side of the church and 50 m apart. Jack sees the top of the steeple at 40° and Jill sees the top of the steeple at 32°. How high is the steeple to the nearest tenth?