Accel Precalc Practice Worksheet #1: Application Problems Name _____

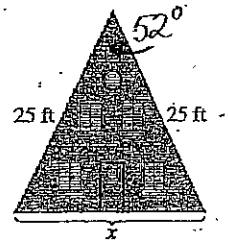
Unit 8: Extended Trig

Solve each problem. Round to nearest tenth unless otherwise specified in problem.

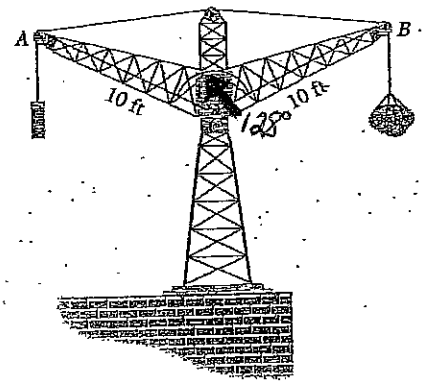
1) *Distance across a Lake* Points A and B are on opposite sides of Lake Yankee. From a third point, C, the angle between the lines of sight to A and B is 46.3°. If AC is 350 meters long and BC is 286 meters long, find AB.

2) *Diagonals of a Parallelogram* The sides of a parallelogram are 4.0 cm and 6.0 cm. One angle is 58° while another is 122°. Find the lengths of the diagonals of the parallelogram.

3) *Playhouse Layout* The layout for a child's playhouse in her backyard shows the dimensions given in the figure. Find x.



4) *Distance between Points on a Crane* A crane with a counterweight is shown in the figure. Find the horizontal distance between points A and B.

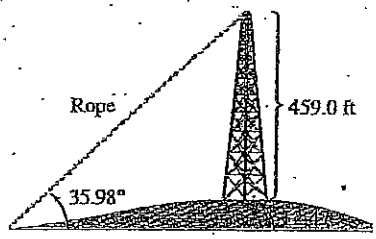


5) *Area of the Bermuda Triangle* Find the area of the Bermuda Triangle if the sides of the triangle have approximate lengths 850 miles, 925 miles, and 1300 miles.

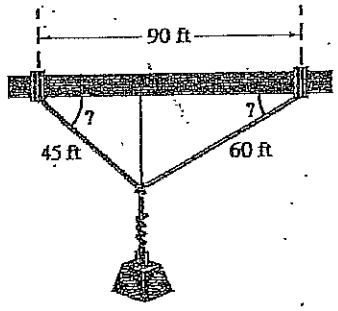
6) *Distance between Two Ships* Two ships leave a harbor together, traveling on courses that have an angle of 135° 40′ between them. If they each travel 402 miles, how far apart are they?

7) *Flight Distance* Airports A and B are 450 km apart, on an east-west line. Tom flies in an approximately northeast direction from A to airport C. From C he flies 359 km on a bearing of 128° 40′ to B. How far is C from A?

8) *Length of a Rope* A hill slopes at an angle of 12.47° with the horizontal. From the base of the hill, the angle of elevation of a 459.0-foot tower at the top of the hill is 35.98°. How much rope would be required to reach from the top of the tower to the bottom of the hill?



9) *Angle between a Beam and Cables* A weight is supported by cables attached to both ends of a balance beam, as shown in the figure. What angles are formed between the beam and the cables?



10) *Perfect Triangles* A *perfect triangle* is a triangle whose sides have whole number lengths and whose area is numerically equal to its perimeter. Show that the triangle with sides of lengths 9, 10, and 17 is perfect.