Oblique Triangle Applications Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A ranger in an observation tower can sight the North end of a lake 15 km away and the South end of the same lake 19 km away. The angle between these two lines of sight is 104°. How long is the lake?
2. A college football pennant is in the shape of an isosceles triangle. The base is 16 in. long. The sides meet at an angle of 35°. How long are the sides?
3. Two planes leave an airport at the same time, one flying due West at 500 km/h and the other flying due Southeast at 300 km/h. What is the distance between the two planes two hours later?
4. From a hang glider approaching a 5000 ft clearing the angles of depression of the opposite ends of the field measure 24° and 30°. How far is the hang glider from the nearer end of the field?
5. Two streets meet at an angle of 52°. If a triangular lot has frontages of 60 m and 65 m on the two streets, what is the perimeter of the lot?
6. A loading ramp 5 m long makes a 25° angle with the level ground beneath it. The ramp is replaced by another ramp 15 m long. Find the angle that the new ramp makes with the ground.
7. A water molecule consists of one oxygen atom joined to two hydrogen atoms. The distance from the nucleus of each hydrogen atom to the nucleus of the oxygen atom is 9.58X10-9 cm, and the bond angle is 104.8°. How far are the nuclei of the two hydrogen atoms from each other?
8. Two cables of length 300 m and 270 m extend from the top of a television antenna to the level ground on opposite sides of the antenna. The longer cable makes an angle of 48° with the ground. Find the acute angle that the shorter cable makes with the ground and the distance between cables along the ground.
9. The measures of two sides of a parallelogram are 50 cm and 80 cm, and one diagonal is 90 cm long. How long is the other diagonal?
10. A vertical pole 20 m tall standing on a 15° slope is braced by two cables extending from the top of the pole to two points on the ground, 30 m up the slope and 30 m down the slope. How long are the cables?
11. Find X in the diagram below:



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