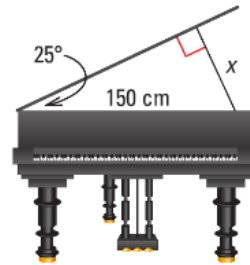
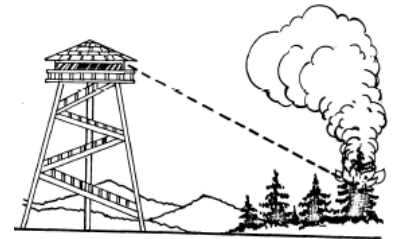


When solving these real world problems, make sure to include your units and round everything to the nearest tenth decimal place.

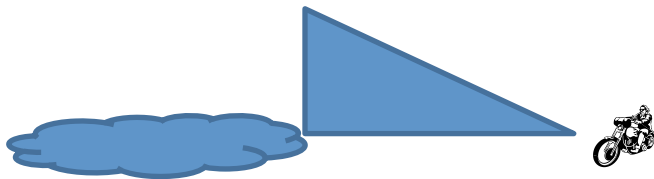
1. Find the length of the prop holding open the piano.



2. The angle of depression from an observation tower to a fire is  $28^\circ$ . The height of the tower is 90 feet. How far is the fire from the tower's base?



3. A daredevil needs to build a ramp in the shape of a right triangle so that he can jump a small pond. Since the best angle for a projectile (angle of elevation) is 45 degrees, he decided to build the ramp at this angle. The ramp begins 12 feet from the edge of the pond. How long will the ramp be from the starting point to the end (the point where the daredevil jumps off the end of it)?



4. An engineering firm is looking at drawings for a new bridge that has metal supports in the shape of a right triangle. The bases of the supports have a 64 degree angle and the 90 degree angle. Additionally, the base is 6 feet long.

a) How long will the hypotenuse of the right triangle be?

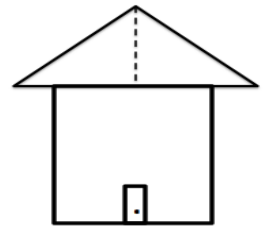
b) How tall will the metal support be?

5. I need to build a coffee table that is made up of two identical right triangles put together. The short leg of the triangle is 2 meters and the adjacent angle is 50 degrees. What is the length of the hypotenuse? (Hint: Draw a picture of just one of the triangles).

6. The cheerleaders use ropes to hold up the run-through sign for the football team. Assume the rope is attached to the ground once it is stretched out all the way and it makes a 67 degree angle with the ground. If the rope is 14 yards long, how tall is the run-through sign?

7. The wooden frame on a house when cut in half makes two congruent right triangles. The entire angle at the top of the frame is a 40 degree angle. The slant of the frame is 15 feet long.

a) How much wood would we need to make the height of the frame?



b) How much wood do we need for the entire base (bottom side) of the frame?

c) What is the minimum amount of wood that we would need to make one of these frames (*you need to include the height of the frame to make it*)?