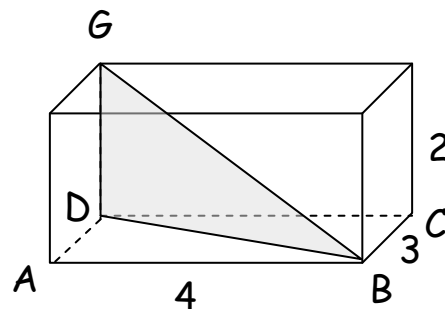


Right Triangle Application Problems

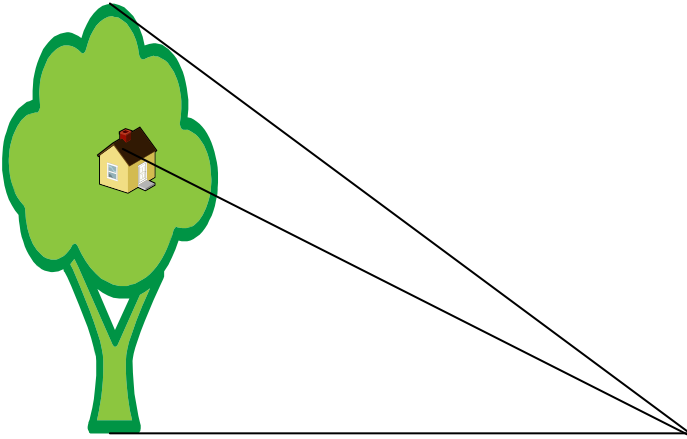
For the following problems, draw a picture of the scenario and answer the question. Make sure to use your special right triangle formulas!

1. Math often shows up in sports in ways that we don't realize. Take for example the baseball diamond. It is actually a square with the bases set at 90° angles. If the bases are 90 feet apart, how far is it from home plate to second base? Round to the nearest tenth.
2. In sailing, it is not possible to head straight into the wind. In order to get upwind, a sailboat simply sails at an angle to the wind and then turns to sail back toward where it wants to go. Assume that a boat needs to get directly upwind 6000 m. If it sails off at a 45° angle to the wind and then turns back 90° towards the original goal, how far would it have to sail to get directly upwind 6000 meters? Round your answer to the nearest tenth.
3. Roof trusses often use right triangles to make a flimsy 2 x 4 more rigid to hold up the weight of the roof. If a house is 40 feet wide and the roof is an isosceles triangle with base angles of 30° , how far is it from the bottom edge of the roof to the peak? Round your answer to the nearest tenth.

4. A rectangular box has length 4, width 3, and height 2.
 - a) find BD.
 - b) Find GB to the nearest hundredth.



5. The angle formed by the shadow of an 18 foot tall tree to the top of a tree is 60° . The angle is split into a 1:3 ratio so that a wire connecting the top of a tree house in the tree to the shadow forms the bigger of the two angles. How far off the ground is the tree house?



6. A 6 ft tall person is enjoying a Saturday afternoon by flying a kite. He uses all 75 feet of the kite string, and the angle formed by the string and the horizontal distance at his hand is 30° . How high off the ground is the kite?



7. A guy wire supporting a radio tower is anchored 60 feet from the foot of the tower. Find the length of the guy wire if it forms a 60° angle with the ground.

8. Find the perimeter of $\triangle ABC$. Do not round.

