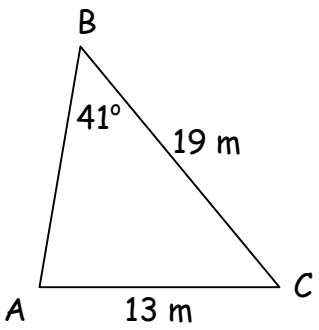
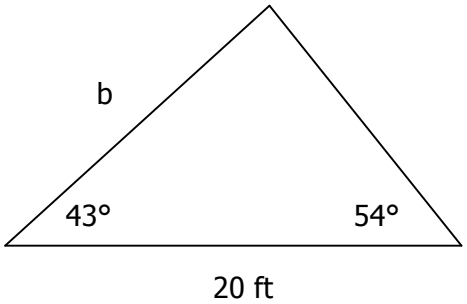
MCR3U Solving triangles and two dimensional problems

1. The observation deck of a lighthouse is located 50 ft above sea level. From there, a fishing boat is located at an angle of depression of 21°. How far is the fishing boat horizontally from the lighthouse? Include a clear diagram with your solution.

2. Determine angle A in the following acute triangle.



3. Determine the length, b, of the left side of this acute triangle.



4. Determine the largest angle in an acute triangle with side lengths of 10 cm, 15 cm, and 20 cm.

5. The green on a golf hole lies 350 yards directly north of the tee, with a water hazard in between the tee and the green. If a golfer's first shot travels 230 yards from the tee at 25° [to the west of north] and lands on the fairway, how far will the golfer have to hit the second shot from the fairway in order to land on the green

6. A 25 ft wide house is being designed to have one side of its roof slanted at 31° in order to install solar panels. The rafters forming this side of the roof are 18 ft long.

   a) Determine the length, a, of the rafters on the other side of the roof.
   b) Determine the remaining angles in the triangle that forms the roof.