PreCalculus   Name_____

Guided Practice: 4.3 – 4.4 Applications   Date_____Block_____

Round each answer to the nearest hundredth. DON'T FORGET YOUR UNITS!

1. Devan stands 926 meters from a point directly below the peak of a mountain. The angle of elevation between Devan and the top of the mountain is $42°$.

   a. What is the height of the mountain?

   b. A tower 50 m high is built on top of the mountain. What is the angle of elevation from Devan's position to the top of the tower?

   c.   If a bird flew from Devan's position to the top of the mountain, how many meters would it travel?

2. An engineer builds a 75 foot-cellular telephone tower. Find the angle of elevation to the top of the tower at a point on level ground 50 feet from its base.

3. From a point 80 meters from the base of a building to the top of the building the angle of elevation is $51°$. From the same point to the top of a flag staff on the building the angle of elevation is $54°$.

    a.   Find the height of the building.

    b. Find the combined height of the building and flagpole.

    c. What is height of the flagpole alone?

    d. How long must a cable be in order to stretch from the observation point to the top of the building?

4. The angle of depression of a buoy from the top of the Barnegat Bay lighthouse 130 feet above the surface of the water is $6°$. Find the distance from the base of the lighthouse to the buoy.
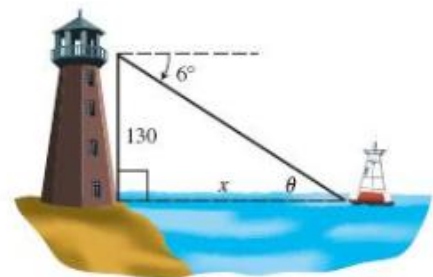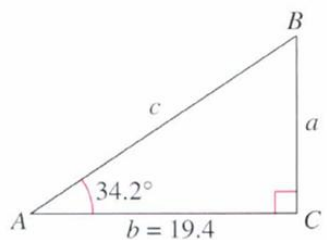
5. From the top of a 100-ft building a man observes a car moving toward him. If the angle of depression of the car changes from 15° to 33° during the period of observation, how far does the car travel?
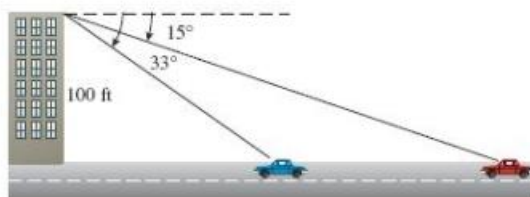
In 6 – 7, solve the right triangle.

6.

7.