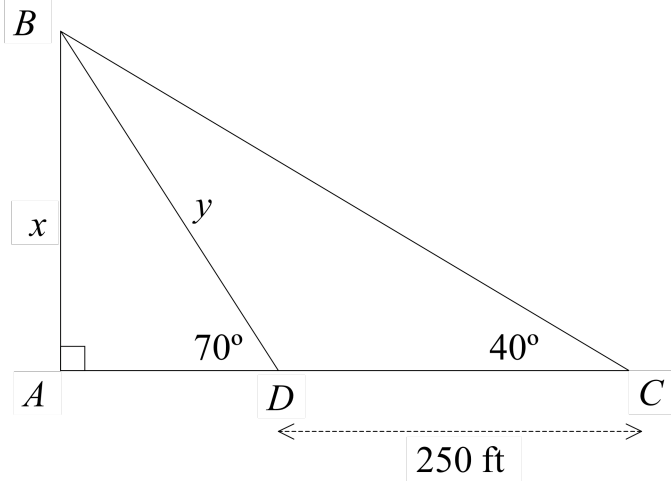


## “Double-Triangle” Problems

1. In  $\triangle ABC$ ,  $m\angle ACB = 40^\circ$ ,  $m\angle ADB = 70^\circ$ , and  $DC = 250$  ft.



- Find  $m\angle BDC$ .
- Find  $m\angle DBC$ .
- Find  $y$  to the *nearest thousandth* of a foot.
- Find  $x$  to the *nearest tenth* of a foot.

2. The angle of elevation from a ship at point  $A$  to the top of a lighthouse at point  $B$  is  $43^\circ$ . When the ship reaches point  $C$ , 300 meters closer to the lighthouse, the angle of elevation is  $56^\circ$ . Find, to the *nearest meter*, the height of the lighthouse.

3. A man at one point on the street finds that the angle of elevation to the top of a tower is  $29.8^\circ$ . After walking toward the tower for 200 feet in a straight line, he finds that the angle of elevation to the top of the tower is now  $65.3^\circ$ . What is the height of the tower to the nearest foot?
4. As Jackie and Beth bicycle to Jones Beach along the Wantagh Parkway, they take a sighting of the top of the Jones Beach Tower and find it to be  $27.4^\circ$ . After biking closer to the beach, they get an angle measurement of  $41.2^\circ$  to the top of the tower. Knowing that the Jones Beach Tower is 200 feet tall, how far, to the nearest foot, were they from the tower at each of the two locations where they took their measurements?