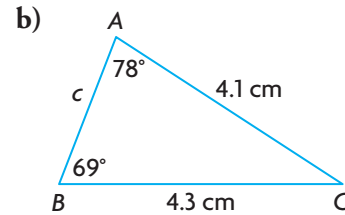
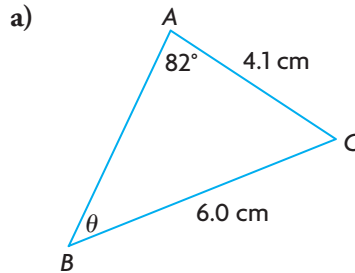
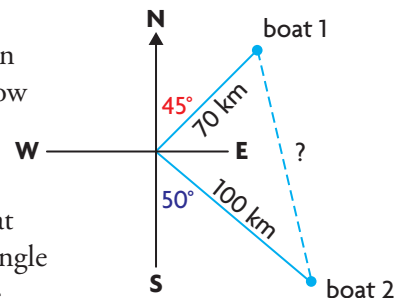


1. Determine the indicated side length or angle measure in each triangle. Round answers to the nearest tenth of a unit.



2. In  $\triangle PQR$ ,  $\angle P = 80^\circ$ ,  $\angle Q = 48^\circ$ , and  $r = 20$  cm. Solve  $\triangle PQR$ . Where necessary, round answers to the nearest tenth of a unit.

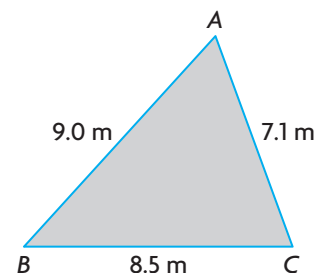
3. The radar screen of a Coast Guard rescue ship shows that two boats are in the area, as shown in the diagram. How far apart are the two boats, to the nearest tenth of a kilometre?



4. A parallelogram has adjacent sides that are 11.0 cm and 15.0 cm long. The angle between these sides is  $50^\circ$ . Determine the length of the shorter diagonal to the nearest tenth of a centimetre.

5. Points  $P$  and  $Q$  lie 240 m apart in line with and on opposite sides of a communications tower. The angles of elevation to the top of the tower from  $P$  and  $Q$  are  $50^\circ$  and  $45^\circ$ , respectively. Determine the height of the tower to the nearest tenth of a metre.

6. Terry is designing a triangular patio, as shown. Determine the area of the patio to the nearest tenth of a square metre.



7. In an acute triangle, two sides are 2.4 cm and 3.6 cm. One of the angles is  $37^\circ$ . How can you determine the third side in the triangle? Explain.
8. Why do you need both the sine law and the cosine law to determine side lengths in an acute triangle?

**WHAT DO You Think Now?** Revisit **What Do You Think?** on page 115. How have your answers and explanations changed?