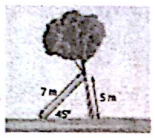
KEY

Applications of LOS and LOC

1. A 7 m long post supports a tree at a point 5 m up the trunk. The post makes an angle of 45° with the ground. Determine the angle the tree makes with the ground.

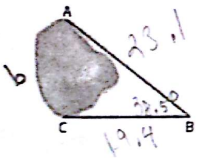
LOS
Ambiguous Case



82° or 98°

2. To measure the length of a pond, a surveyor places stakes at points *A*, *B*, and *C* and measures *AB* to be 23.1 m, *BC* to be 19.4 m and ∠ *B* to be 38.5°. What is the length of the pond to the nearest tenth of a metre?

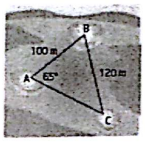
LOC



14.4 m

3. When planning a local park, the designers wanted to include three ponds (*A*, *B*, and *C*) with a fountain in the middle of each pond. The following information is known. The distance between pond *A* and pond *B* is 100 m and the distance between pond *B* and pond *C* is 120 m. The angle pond *A* makes with the other two ponds is 65°. Determine the distance between pond *A* and pond *C*.

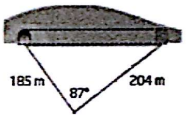
LOS
Ambiguous Case



121 m

4. In order to plan a tunnel through a mountain, a surveyor makes the measurements shown. Use the surveyor's measurements to determine the length of the tunnel to the nearest metre.

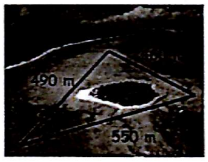
LOC



268 m

5. The three markers in a triangular sailing course around an island are shown it the diagram. The instructors would like each of the angles to be less than 70°. Will this design be appropriate? **Justify** your answer.

LOC



B = 109°

No, ∠B is obtuse

$550^2 = 490^2 + 460^2 - 2(490)(460)\cos C$