

3.4

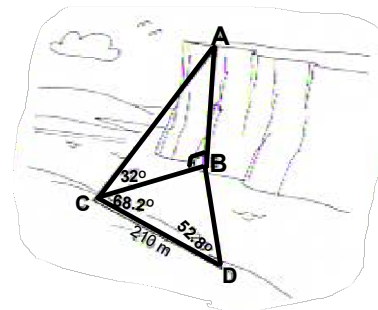
Solving Problems Using
Acute Triangles

Strategies to solve acute triangles:

- « Sine Law
- « Cosine Law
- « Primary Trigonometric ratios
- « Pythagorean Theorem
- « Sum of angles in a Triangle

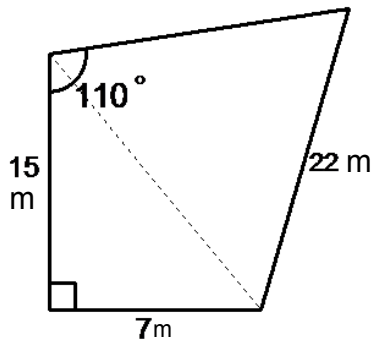
Example 1:

In order to measure the height of an inaccessible cliff, AB, a surveyor lays off a baseline CD and records the following data: $\angle BCD = 68.2^\circ$, $\angle BDC = 52.8^\circ$, $CD = 210$ m, and $\angle ACB = 32^\circ$. Find the height of the cliff AB.



Example 2:

A children's playground, in the shape of a quadrilateral, is to be fenced. Determine the total length of fencing required.

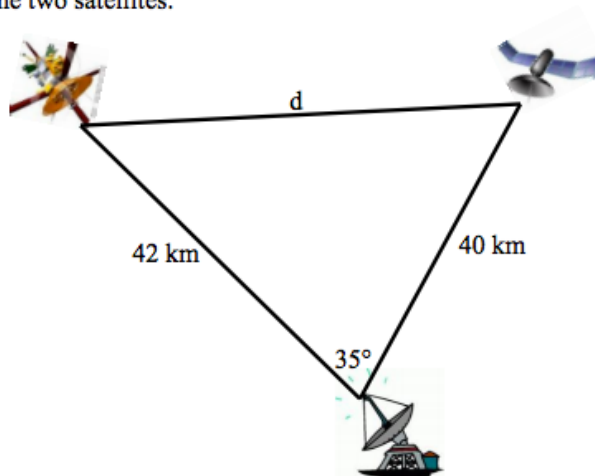


Example 3:

A ship passing an island establishes, by sonar, a distance of 8 km from the ship to one end of the island and 9 km to the other end of the island. The angle formed at the ship, from the sonar, is 74° . Determine the length of the island.

Example 4:

Determine the distance, d , between the two satellites.




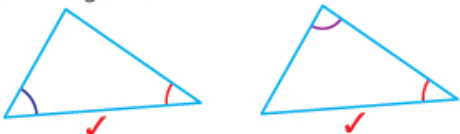


In Summary

Key Idea

- The sine law, the cosine law, the primary trigonometric ratios, and the sum of angles in a triangle may all be useful when solving problems that can be modelled using acute triangles.

Need to Know

- To decide whether you need to use the sine law or the cosine law, consider the information given about the triangle and the measurement to be determined.

Information Given	Measurement to be Determined	Use
two sides and the angle opposite one of the sides 	angle	sine law
two angles and a side 	side	sine law
two sides and the contained angle 	side	cosine law
three sides 	angle	cosine law

- Drawing a clearly labelled diagram makes it easier to select a strategy for solving a problem.