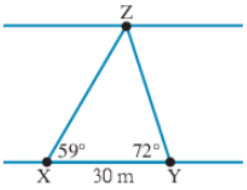
Lesson 9

All tech active

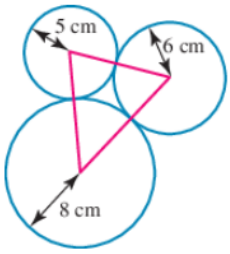
13. **WE9** In a triangle ABC, $a = 9\,\text{cm}$, $c = 8\,\text{cm}$ and $A = 42^\circ$. Calculate the two possible values of angle C.
14. Calculate the possible values for angle A in a triangle ABC for which $c = 15\,\text{cm}$, $b = 12\,\text{cm}$ and $C = 35^\circ$.

6. **WE6** X and Y are two trees 30 m apart on one side of a river, as shown in the diagram. Z is a tree on the opposite side of the river. It is found that $\angle XYZ = 72^\circ$ and $\angle YXZ = 59^\circ$. Calculate the distance XZ, correct to 1 decimal place.



14. Calculate the size of all three angles (correct to the nearest degree) in a triangle with side lengths 12 cm, 14 cm and 17 cm.
15. **WE15** Two roads diverge from point P. The first road is 5 km long and leads to point Q. The second road is 8 km long and leads to point R. The distance between Q and R is 4.6 km. Calculate the angle at which the two roads diverge.

20. Three circles of radii 5 cm, 6 cm and 8 cm are positioned so that they just touch one another. Their centres form the vertices of a triangle. Calculate the largest angle in the triangle in degrees and minutes.



7. A ship sails on a bearing of S20°W for 14 km, then changes direction and sails for 20 km and drops anchor. Its bearing from the starting point is now N65°W.
   a. How far is it from the starting point?
   b. On what bearing did it sail the 20 km leg?

3 1 mark, 1.5 minutes

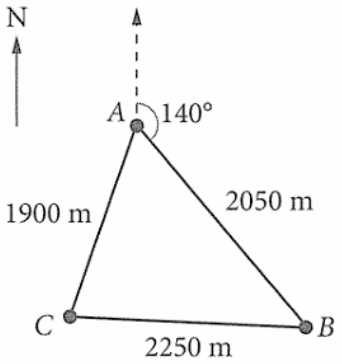
[Module 2: Question 6 from VCE Further Mathematics Examination 1, 2014, illustrations redrawn]

A cross-country race is run on a triangular course. The points A, B and C mark the corners of the course, as shown.

The distance from A to B is 2050 m.
The distance from B to C is 2250 m.

The distance from A to C is 1900 m.
The bearing of B from A is 140°.

Determine the bearing of C from A.



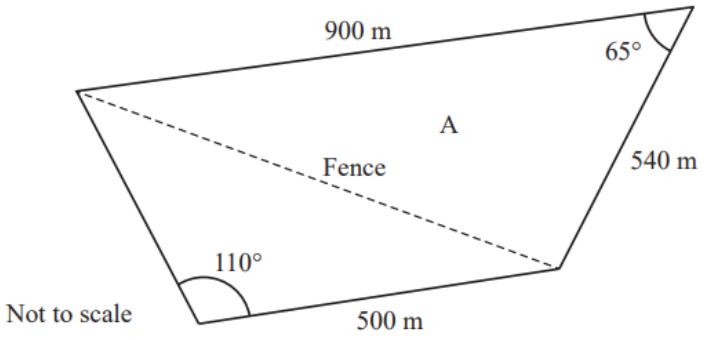
QUESTION 15 (7 marks)

A hiker begins her journey at a youth hostel (H) and walks for 8 km on a bearing of 052°T to her lunch stop (L). She then walks on a bearing of 210°T for 5.2 km until she reaches a campsite (C).

Determine the direction she would need to walk in a straight line to return directly to the youth hostel.

QUESTION 14 (7 marks)

A fence divides a paddock into two triangular sections as shown.



a) Determine the length of the fence. *[1 mark]*

b) Calculate the area of triangular section A. *[1 mark]*

c) Determine the total area of the paddock. *[5 marks]*