Test - Sine rule, cosine rule and area of a triangle

Year: Year 11 · Duration: 45 minutes · /20

Name:	Date:	**Mark: /20**

Question	1	2	3	4	5	Total
marks	4	4	4	4	4	**20**
Mark						

Show your working.

Question 1 (4 marks)

Question 1 – Sine rule (Higher)

In triangle ABC, $A = 50^\circ$, $B = 70^\circ$ and $a = 12$ cm.

a. Find b to 2 decimal places. (3 marks)
b. Find angle C. (1 mark)

Question 2 (4 marks)

Question 2 – Cosine rule (Higher)

In triangle ABC, $b = 9$ cm, $c = 11$ cm and $A = 62^\circ$.

a. Find a to 2 decimal places. (3 marks)
b. Find the area of the triangle. (1 mark)

Question 3 (4 marks)

Question 3 – Area (Higher)

A triangle has sides 7.5 cm and 9 cm with an included angle of 42°.

a. Find its area to 1 decimal place. (2 marks)
b. Find the length of the third side. (2 marks)

Question 4 (4 marks)

Question 4 – Angle from three sides (Higher)

A triangle has sides 6 cm, 8 cm and 11 cm.

a. Find the largest angle to 1 decimal place. (3 marks)
b. Is the triangle acute, right-angled or obtuse? (1 mark)

Question 5 (4 marks)

Question 5 – Problem: two boats (Higher)

Two boats leave a harbour at the same time. Boat A sails 15 km and boat B sails 20 km. The angle between their paths is 75°.

a. Find the distance between the boats to 1 decimal place. (3 marks)
b. Find the area of the triangle formed by the harbour and the two boats. (1 mark)