Test - Trigonometry

Year: Year 12 · Duration: 60 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 – Cosine rule and area

In triangle ABC, $AB = 7$ cm, $AC = 10$ cm and angle $A = 58°$.

a. Find BC to 3 significant figures. (2 marks)
b. Find the area of the triangle to 3 significant figures. (2 marks)

Question 2 (4 marks)

Question 2 – Radians

A sector of a circle has radius 9 cm and angle 0.8 radians.

a. Find the arc length. (1 mark)
b. Find the area of the sector. (1 mark)
c. Find the area of the segment cut off by the chord to 2 decimal places. (2 marks)

Question 3 (4 marks)

Question 3 – Proving an identity

Prove that $\dfrac{\sin\theta}{1+\cos\theta} + \dfrac{1+\cos\theta}{\sin\theta} \equiv \dfrac{2}{\sin\theta}$.

Question 4 (4 marks)

Question 4 – Solving an equation

Solve $2\sin^2\theta = 1 + \cos\theta$ for $0° \le \theta \le 360°$.

Question 5 (4 marks)

Question 5 – Problem: a harbour

A boat leaves harbour H and travels 12 km on a bearing of 065° to A. It then travels 9 km on a bearing of 140° to B.

a. Show that angle $HAB = 105^\circ$. (1 mark)
b. Find the distance HB. (2 marks)
c. Find the bearing of B from H to the nearest degree. (1 mark)