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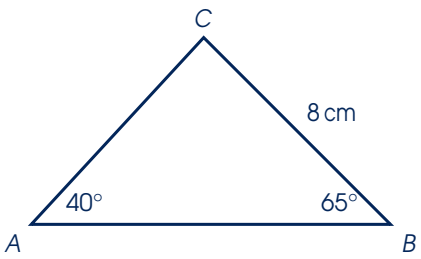
Name ..... Class .....

G22: Sine and cosine rules

Use the sine rule and the cosine rule to find lengths and angles

20 marks · 25 minutes · Calculator allowed

1) In triangle ABC, angle $A = 40°$, angle $B = 65°$ and $BC = 8$ cm. Find AC. Give your answer to 3 significant figures.



..... cm

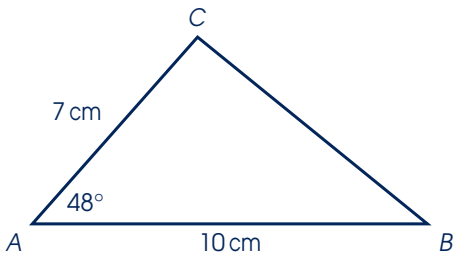
[Question 1: 3 marks]

2) In triangle ABC, $BC = 9$ cm, $AC = 11$ cm and angle $A = 50°$. Angle B is acute. Find angle B. Give your answer to 1 decimal place.

..... °

[Question 2: 3 marks]

3) In triangle ABC, $AC = 7\,\text{cm}$, $AB = 10\,\text{cm}$ and angle $A = 48°$. Find BC. Give your answer to 3 significant figures.



..... cm

[Question 3: 3 marks]

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4) A triangle has sides 5 cm, 7 cm and 9 cm. Find its largest angle. Give your answer to 1 decimal place.

..... °

[Question 4: 3 marks]

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5) In triangle ABC, $AB = 12\,\text{cm}$, $AC = 15\,\text{cm}$ and angle $A = 110°$. Find BC. Give your answer to 3 significant figures.

..... cm

[Question 5: 3 marks]

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6) Which rule would you use to find a missing side when you know

(a) two sides and the angle between them?

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(1)

(b) two angles and one side?

.....

(1)

[Question 6: 2 marks]

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7) In triangle ABC, angle $A = 35°$, angle $B = 80°$ and $BC = 6$ cm.

(a) Find angle C.

..... °

(1)

(b) Find AB. Give your answer to 3 significant figures.

..... cm

(2)

[Question 7: 3 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	11.3	$\frac{AC}{\sin 65^\circ} = \frac{8}{\sin 40^\circ}$ (M1); rearrange (M1); A1.
2	69.4	$\sin B = \frac{11 \sin 50^\circ}{9}$ (M1, M1); A1.
3	7.44	$49 + 100 - 140 \cos 48^\circ$ (M1); 55.3 ... (M1); A1.
4	95.7	$\cos C = \frac{25 + 49 - 81}{70}$ (M1, M1); A1.
5	22.2	$144 + 225 - 360 \cos 110^\circ$ (M1); 492.1 ... (M1); A1.
6	(a) cosine rule (b) sine rule	B1 each.
7	(a) 65 (b) 9.48	(a) B1. (b) $\frac{6 \sin 65^\circ}{\sin 35^\circ}$ (M1); A1.