

# 3.1 Basic Trigonometry

## Question Paper

Course	Edexcel IAL Maths: Pure 1
Section	3. Trigonometry
Topic	3.1 Basic Trigonometry
Difficulty	Easy

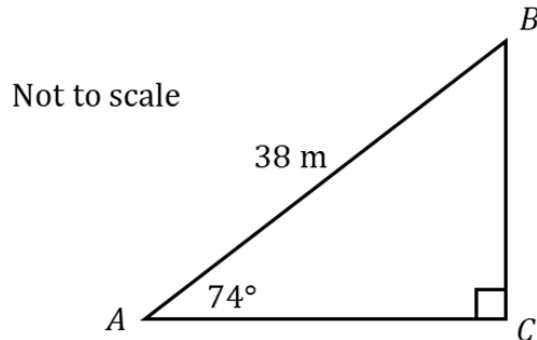
**Time allowed:** 40

**Score:** /35

**Percentage:** /100

### Question 1

$ABC$  is a right-angled triangle.  $AB = 38$  m and angle  $CAB = 74^\circ$ .



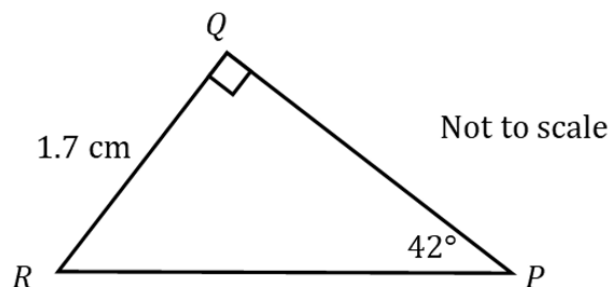
Calculate the length of  $AC$ .

Give your answer correct to one decimal place.

[2 marks]

### Question 2

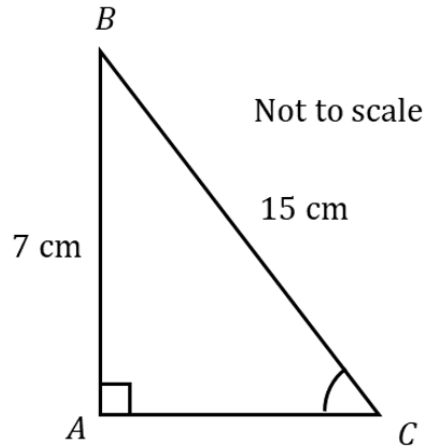
Find the length of the side  $PQ$  in the triangle  $PQR$  below, giving your answer to one decimal place.



[2 marks]

**Question 3**

$ABC$  is a right-angled triangle.  $BC = 15$  cm,  $AB = 7$  cm and angle  $BAC = 90^\circ$ .



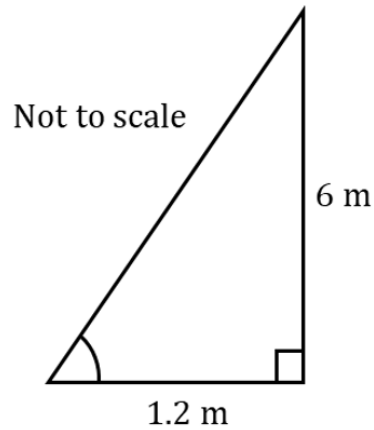
Calculate the size of angle  $ACB$ .

Give your answer correct to three significant figures.

**[2 marks]**

### Question 4

A ladder is placed against a wall. The base of the ladder is 1.2 m away from the base of the wall and it reaches 6 m up the wall.



To be safe to climb, the angle between the ladder and the ground must be between  $65^\circ$  and  $75^\circ$ .

(a) Is the ladder safe to climb? You must show your working.

**[3 marks]**

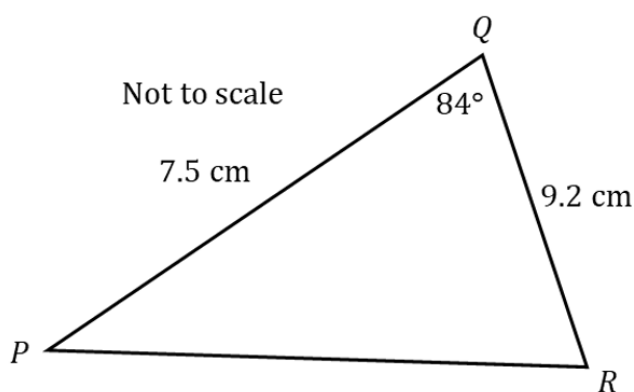
### Question 4

(b) Calculate the length of the ladder, give your answer to the nearest cm.

**[3 marks]**

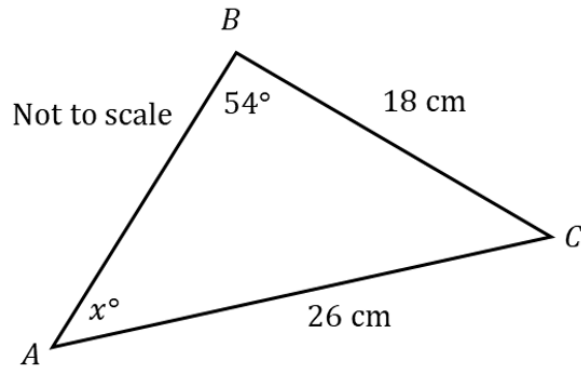
### Question 5

$PQR$  is a triangle with angle  $PQR = 84^\circ$  and side lengths  $PQ = 7.5$  cm and  $QR = 9.2$  cm.  
Use cosine rule to calculate the length of  $PR$ .



**[3 marks]**

### Question 6

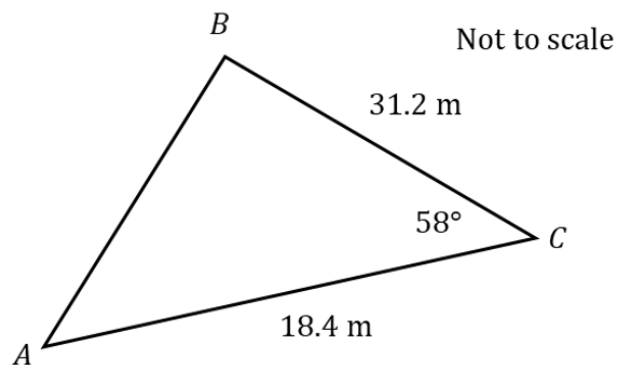


$x$  is an acute angle. Use sine rule to calculate the angle  $x^\circ$ . Give your answer to the nearest degree.

**[3 marks]**

### Question 7

A triangular field is shown in the diagram below. Calculate the area of the field, give your answer to the nearest square metre.



**[3 marks]**

### Question 8

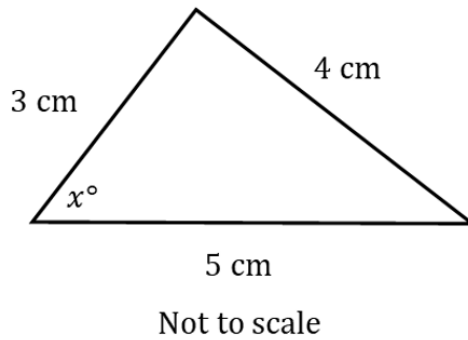
$PQR$  is a triangle with angle  $PQR = 39^\circ$  and angle  $RPQ = 128^\circ$ .  $PR = 2.6$  cm.  
Calculate the length of  $QR$ , correct to 3 significant figures.

**[3 marks]**

### Question 9

A student is calculating the angles in a triangle with side lengths 3 cm, 4 cm and 5 cm, as shown in the diagram below.

She uses cosine rule to find  $x^\circ$  to the nearest degree.



Another student uses SOH CAH TOA to calculate the same angle.

- (i) Show clearly how both students can achieved the same answer using either method.
- (ii) State which is the most efficient method in this case and why.

**[5 marks]**

### Question 10

The area of a triangle  $WXY$  is  $75 \text{ cm}^2$ .  $XY = 14.3 \text{ cm}$  and angle  $WXY = 104^\circ$ .

Using the formula  $A = \frac{1}{2}ab \sin C$ , calculate the length of  $WX$ . Give your answer to three significant figures.

**[3 marks]**



**Question 11**

Show that the cosine formula  $a^2 = b^2 + c^2 - 2bc \cos A$  can be rearranged into the form  $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$ .

**[3 marks]**