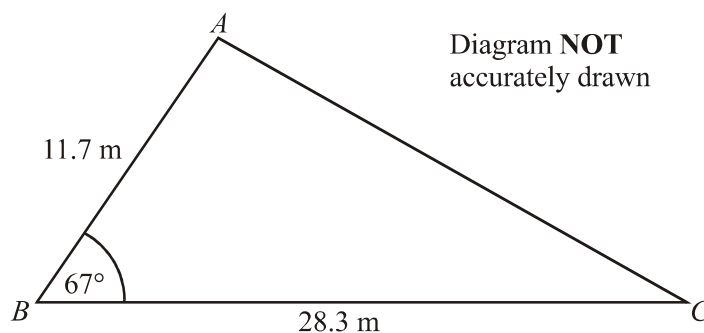


1.



$AB = 11.7 \text{ m.}$
 $BC = 28.3 \text{ m.}$
 $\text{Angle } ABC = 67^\circ.$

- (a) Calculate the area of the triangle ABC .
Give your answer correct to 3 significant figures.

$$\begin{aligned}
 \text{area} &= \frac{1}{2} ab \sin C \\
 &= \frac{1}{2} (11.7)(28.3) \sin(67) \\
 &= 152.394181
 \end{aligned}$$

..... 152 m²

(2)

- (b) Calculate the length of AC .
Give your answer correct to 3 significant figures.

$$\begin{aligned}
 a^2 &= b^2 + c^2 - 2bc \cos A \\
 x^2 &= 11.7^2 + 28.3^2 - 2(11.7)(28.3)\cos(67) \\
 x &= 26.0582047
 \end{aligned}$$

..... 26.1 m

(3)

(Total 5 marks)

2.

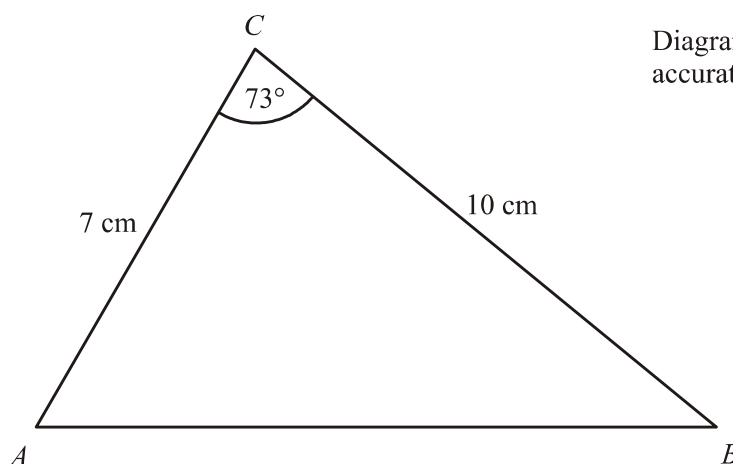


Diagram **NOT** accurately drawn

In triangle ABC ,
 $AC = 7$ cm,
 $BC = 10$ cm,
angle $ACB = 73^\circ$.

Calculate the length of AB .
Give your answer correct to 3 significant figures.

$$a^2 = b^2 + c^2 - 2bc \cos A$$
$$x^2 = 7^2 + 10^2 - 2(7)(10) \cos(73)$$
$$x^2 = 108.0679613$$
$$x = 10.39557412$$

10.4 cm
(Total 4 marks)

3.

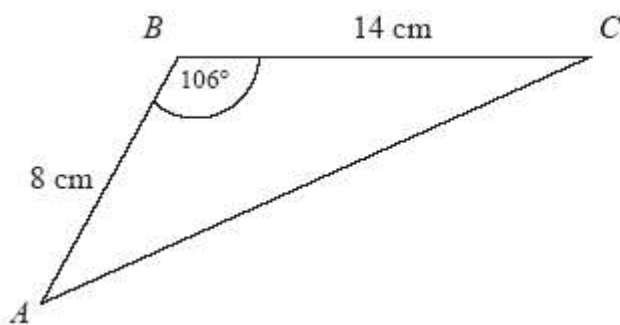


Diagram NOT accurately drawn

ABC is a triangle.

$AB = 8$ cm

$BC = 14$ cm

Angle $ABC = 106^\circ$

Calculate the area of the triangle.

Give your answer correct to 3 significant figures.

$$\begin{aligned} \text{Area} &= \frac{1}{2} ab \sin C \\ &= \frac{1}{2}(8)(14) \sin(106) \\ &= 53.83065497 \end{aligned}$$

53.8cm²
(Total 3 marks)

4.

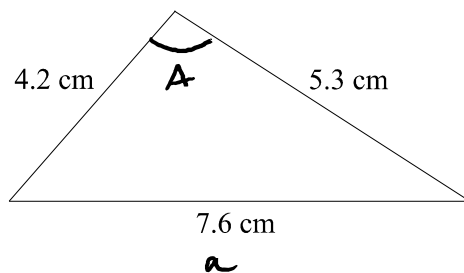


Diagram **NOT** accurately drawn

The lengths of the sides of a triangle are 4.2 cm, 5.3 cm and 7.6 cm.

- (a) Calculate the size of the largest angle of the triangle.
Give your answer correct to 1 decimal place.

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

$$= \frac{(4.2)^2 + (5.3)^2 - (7.6)^2}{2(4.2)(5.3)}$$

$$A = 105.6770987$$

.....105.7.....°

(3)

- (b) Calculate the area of the triangle.
Give your answer correct to 3 significant figures.

$$\frac{1}{2} ab \sin(C)$$

$$\frac{1}{2} (4.2)(5.3) \sin(105.7)$$

$$10.7159621$$

.....10.7..... cm²

(3)

(Total 6 marks)

5.

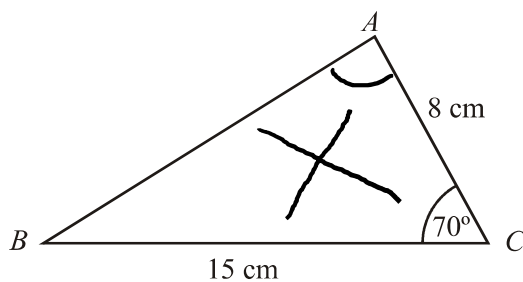


Diagram **NOT** accurately drawn

In triangle ABC ,
 $AC = 8$ cm,
 $BC = 15$ cm,
 Angle $ACB = 70^\circ$.

- (a) Calculate the length of AB .
 Give your answer correct to 3 significant figures.

$$\begin{aligned}
 a^2 &= b^2 + c^2 - 2bc \cos A \\
 &= 8^2 + 15^2 - 2(8)(15)\cos(70) \\
 a^2 &= 206.9151656 \\
 a &= 14.38454607
 \end{aligned}$$

.....14.4..... cm

(3)

- (b) Calculate the size of angle BAC .
 Give your answer correct to 1 decimal place.

$$\begin{aligned}
 \frac{\sin A}{a} &= \frac{\sin B}{b} \\
 \frac{\sin A}{15} &= \frac{\sin 70}{14.4} \\
 \sin A &= \frac{\sin 70}{14.4} \times 15 \\
 &= 0.9798980965 \\
 A &= 78.49235568 \quad \dots\dots\dots 78.5 \dots\dots\dots^\circ
 \end{aligned}$$

(2)

(Total 5 marks)

6.

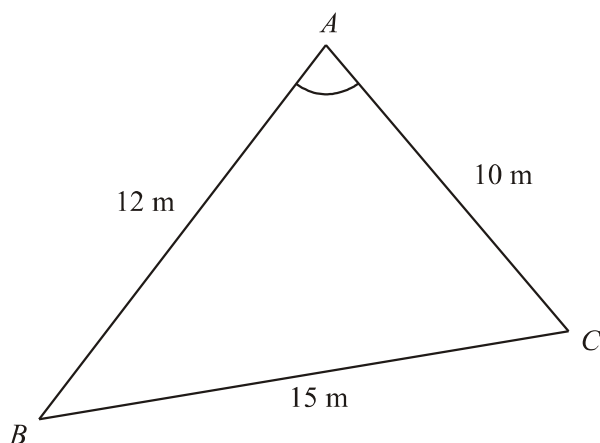


Diagram **NOT** accurately drawn

ABC is a triangle.

$AB = 12$ m.

$AC = 10$ m.

$BC = 15$ m.

Calculate the size of angle BAC .

Give your answer correct to one decimal place.

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

$$= \frac{(12)^2 + (10)^2 - (15)^2}{2(12)(10)}$$

$$A = 85.45933267$$

.....85.5.....°
(Total 3 marks)

7.

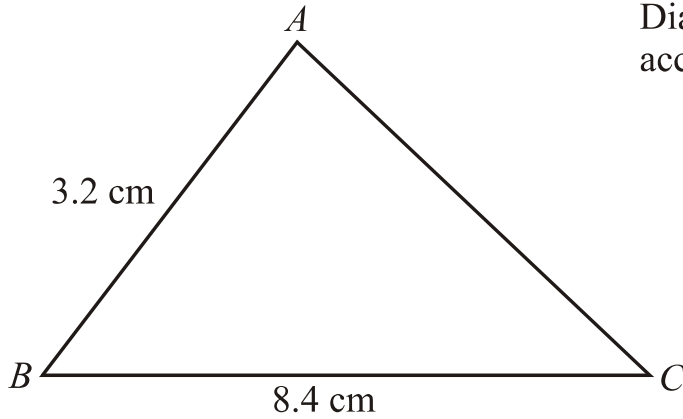


Diagram **NOT** accurately drawn

$AB = 3.2 \text{ cm}$
 $BC = 8.4 \text{ cm}$

The area of triangle ABC is 10 cm^2 .

Calculate the perimeter of triangle ABC .

Give your answer correct to three significant figures.

$$\frac{1}{2} ab \sin C = 10$$

$$\frac{1}{2} (3.2)(8.4) \sin C = 10$$

$$\sin C = 0.74404762 \dots$$

$$C = 48.07736171^\circ$$

$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$= (3.2)^2 + (8.4)^2 - 2(3.2)(8.4) \cos(48.1)$$

$$= 44.88151451$$

$$a = 6.699366724$$

$$\text{ANS} + 3.2 + 8.4 = 18.29936672$$

$\underline{\underline{18.3}}$ cm

(Total 6 marks)