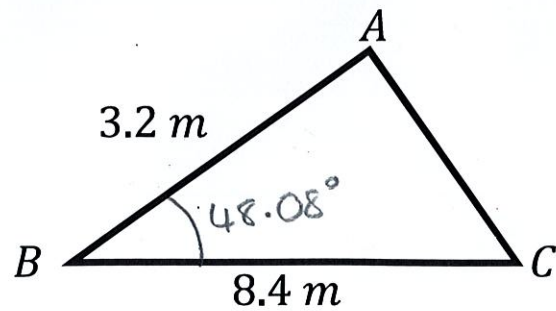


**Trigonometry Problem**



The area of the triangle is  $10 \text{ m}^2$   
Calculate the perimeter of triangle ABC.

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

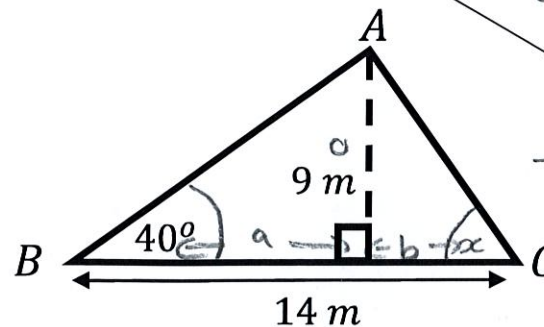
$$\frac{1}{2} \times 3.2 \times 8.4 \sin C = 10$$

$$\sin C = \frac{10}{13.44} = \frac{a\sqrt{k}}{13.44}$$

$$\sin C = 0.744$$

$$ABC = 48.08^\circ$$

Trigonometry Problem



Calculate angle ACB.

$$\tan(40) = \frac{9}{a}$$

$$a = \frac{9}{\tan(40)} = 10.726$$

$$b = 14 - 10.726 = 3.274$$

$$\tan(x) = \frac{9}{3.274} = 2.749$$

$$x = \tan^{-1}(2.749)$$

**Trigonometry Problem**

~~Calculator icon~~ Simplify  $\frac{6\sqrt{3}}{2} - 2 \tan 60^\circ$

$$= \frac{6\sqrt{3}}{2} - 2\sqrt{3}$$

$$= 3\sqrt{3} - 2\sqrt{3}$$

$$= \sqrt{3}$$

**Exact Trig Values**

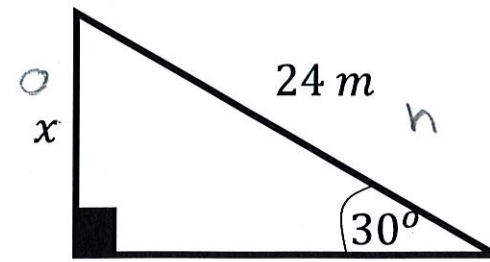
Complete the table ~~Calculator icon~~

90°	1	0	
60°	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$
45°	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1
30°	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}}$
0°	0	1	0
Sin x	Cos x	Tan x	

~~Calculator icon~~  $\tan x = \frac{\sin x}{\cos x}$

**Right Angled Trigonometry**

Find the length of side x. ~~Calculator icon~~



$$\sin(30) = \frac{1}{2}$$

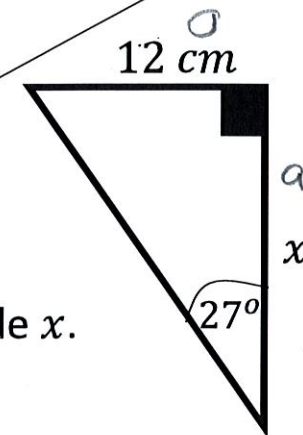
$$\sin(30) = \frac{x}{24}$$

$$24 \times \sin(30) = x$$

$$24 \times \frac{1}{2} = x$$

$$x = 12 \text{ m}$$

Right Angled Trigonometry

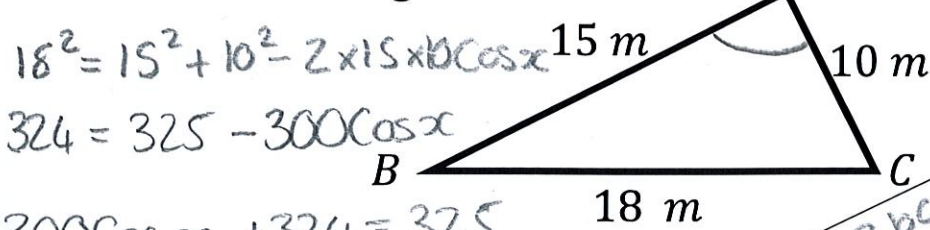


Find the length of side x.

$$\tan(27) = \frac{12}{x}$$

$$x = \frac{12}{\tan(27)} = 23.55 \text{ cm}$$

Calculate the size of angle BAC.



$$18^2 = 15^2 + 10^2 - 2 \times 15 \times 10 \cos x$$

$$324 = 325 - 300 \cos x$$

$$300 \cos x + 324 = 325$$

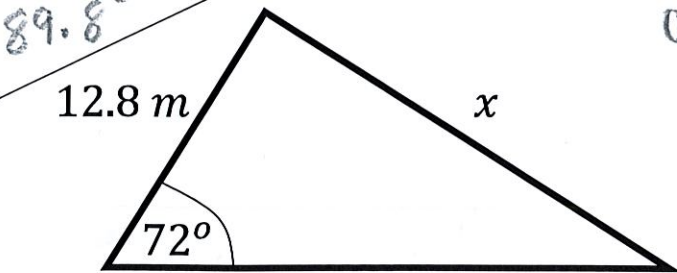
$$-324 + 324 = -324$$

$$300 \cos x = 1$$

$$\cos x = \frac{1}{300}$$

$$x = \cos^{-1}\left(\frac{1}{300}\right)$$

$$x = 89.8^\circ$$



Calculate the length of x.

**Cosine Rule**

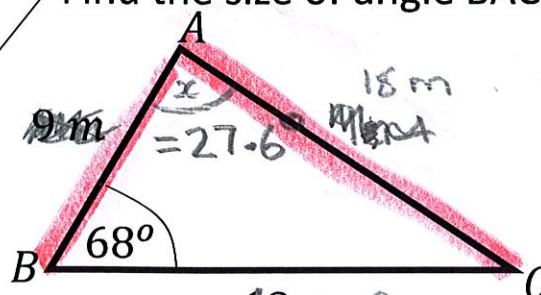
$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$a^2 = 12.8^2 + 32.7^2 - 2 \times 12.8 \times 32.7 \cos(72)$$

$$a^2 = 974.44 - 841.2$$

$$a = \sqrt{133.24} = 11.54 \text{ m}$$

Find the size of angle BAC.



**Sine Rule**

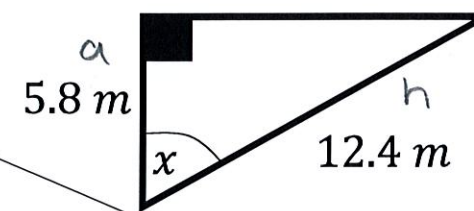
**Exact Trig Values**

Complete the table ~~Calculator icon~~

90°	1	0	
60°	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$
45°	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1
30°	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{\sqrt{3}}$
0°	0	1	0
Sin x	Cos x	Tan x	

~~Calculator icon~~  $\tan x = \frac{\sin x}{\cos x}$

Find the size of angle x.

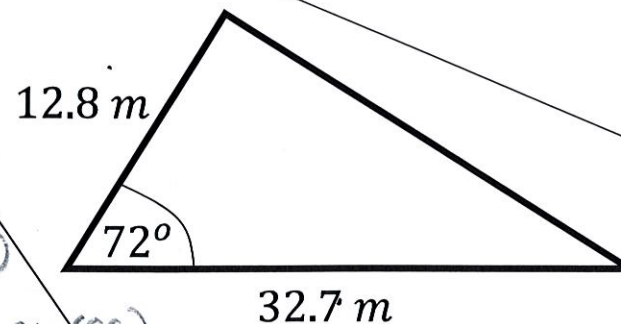


$$\cos(x) = \frac{5.8}{12.4}$$

$$x = \cos^{-1}\left(\frac{5.8}{12.4}\right)$$

$$x = 62.1^\circ$$

Right Angled Trigonometry



Find the area of the triangle.

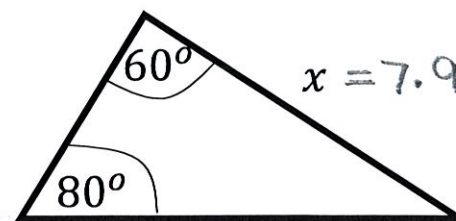
$$\frac{1}{2} ab \sin C$$

$$= \frac{1}{2} \times 12.8 \times 32.7 \times \sin(72)$$

$$= 199.04$$

**Area of a Triangle**

Find the length of side x.



**Sine Rule**

$$x = 7.96 \text{ m}$$

