

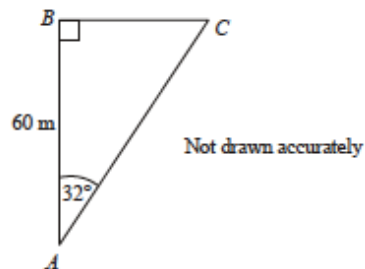
Topic 6 Right-angled triangles (Pre-TT) [42]

1.

ABC is a right-angled triangle.

$AB = 60$ m

Angle $BAC = 32^\circ$

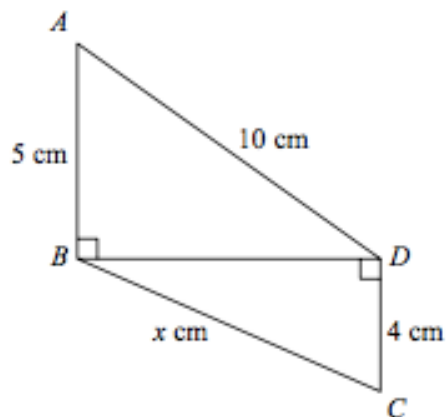


Find the length of BC .

(Total 3 marks)

2.

Triangles ABD and BCD are right-angled triangles.



Work out the value of x .

Give your answer correct to 2 decimal places.

(Total 4 marks)

3. Non-calculator

(a) State the value of $\cos 30^\circ$.

(b) Express the exact value of $\frac{4 \sin 30^\circ}{\tan 60^\circ}$ in terms of surds and simplify your answer.

(Total 4 marks)

4.

(a) Rationalise the denominator and simplify fully $\frac{1}{\sqrt{12}}$

(2)

(b) By simplifying $\sqrt{32} - \sqrt{18}$,
write $\sqrt{3}(\sqrt{32} - \sqrt{18})$

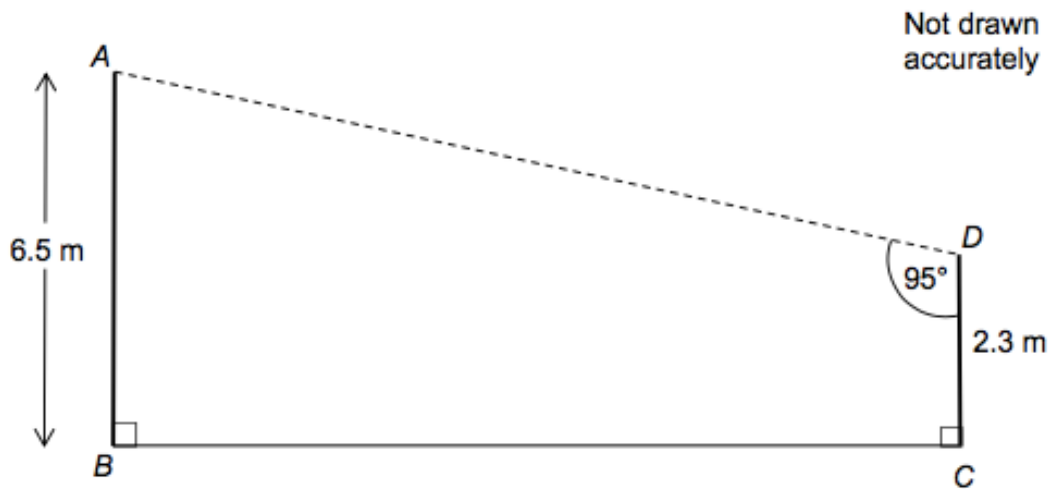
in its simplest form.

(3)
(Total 8 marks)

5.

The diagram shows a design for a zipwire.

The zipwire will run between the top of two vertical posts, AB and CD .



Work out the distance AD .

[4 marks]

6.

Simplify fully $(\sqrt{a} + \sqrt{4b})(\sqrt{a} - 2\sqrt{b})$

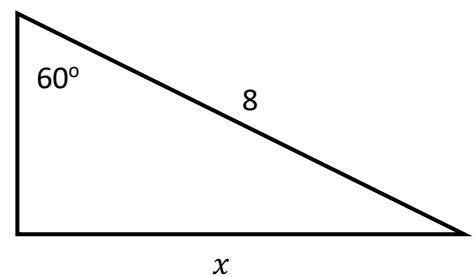
(Total 3 marks)

7.

Non-calculator

Find the exact value of x in the right-angled triangle below.

(Total 3 marks)

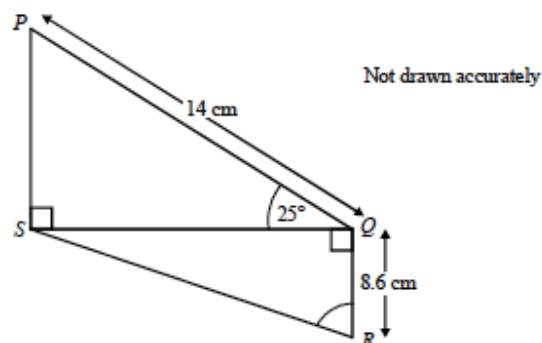


8.

In the diagram, $PQ = 14$ cm and $QR = 8.6$ cm.

Angle $PSQ = \text{angle } SQR = 90^\circ$

Angle $PQS = 25^\circ$

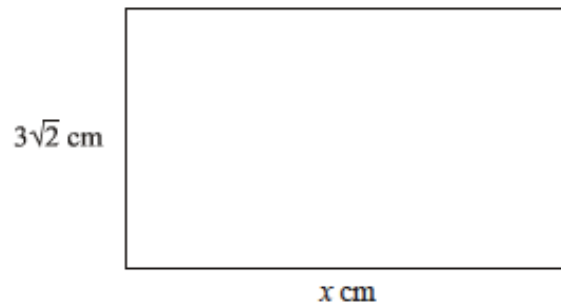


Calculate angle R .

(Total 5 marks)

9.

The area of this rectangle is 30 cm^2 .



Find the value of x , writing your answer in the form $a\sqrt{b}$ where a and b are integers.

(Total 3 marks)

10.

(a) Express $\sqrt{5} + \sqrt{20}$ in the form $p\sqrt{5}$

(2)

(b) Hence, or otherwise, simplify fully $\frac{\sqrt{5} + \sqrt{20}}{\sqrt{45} - \sqrt{20}}$

(3)

(Total 5 marks)