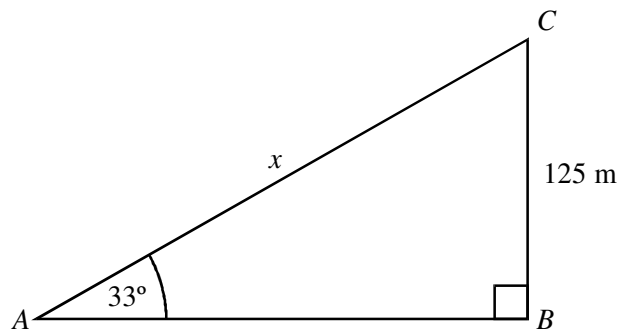


Pythagoras and trigonometry

1. ABC is a right-angled triangle.
 $BC = 125$ m.
 Angle $CAB = 33^\circ$.

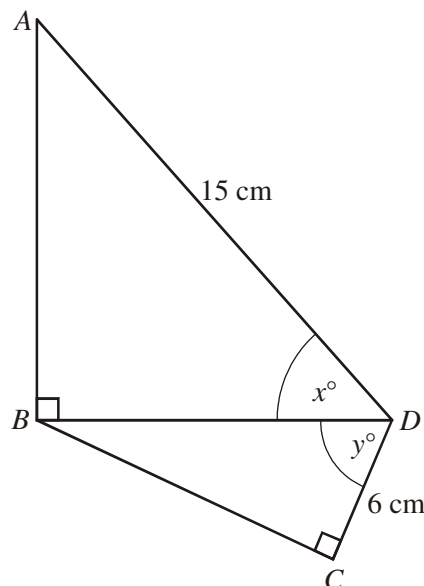


Not drawn accurately

Find the length of AC (marked x in the diagram).
 Give your answer to an appropriate degree of accuracy.

(Total 4 marks)

2. The diagram shows two right-angled triangles.
 $AD = 15$ cm.
 $CD = 6$ cm.



Not to scale

- (a) Given that $\cos x^\circ = \frac{2}{3}$, calculate the length BD .

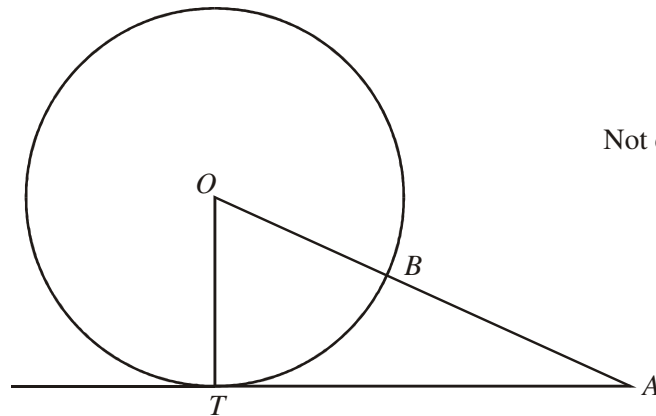
(2)

- (b) Find the value of $\sin y^\circ$.

(3)

(Total 5 marks)

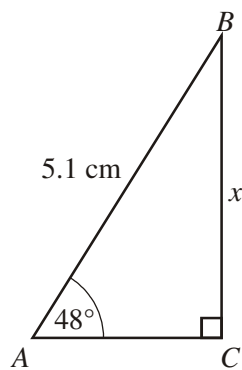
3. The diagram shows a circle with centre O and radius 2.5 cm.
 TA is a tangent to the circle, of length 6 cm.
 The line from A to the centre O of the circle cuts the circumference at B .



Calculate the length of AB .

(Total 4 marks)

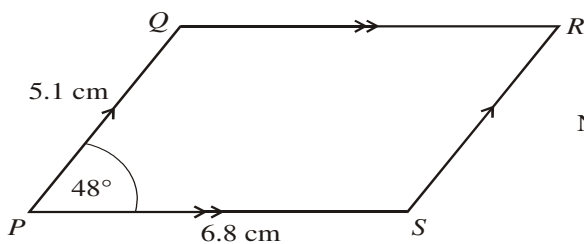
4. (a) ABC is a right-angled triangle.
 $AB = 5.1$ cm
 $\angle CAB = 48^\circ$



Find the length of BC (marked x in the diagram).
 Give your answer to a suitable degree of accuracy.

(4)

- (b) $PQRS$ is a parallelogram.
 $PQ = 5.1$ cm
 $PS = 6.8$ cm
 $\angle QPS = 48^\circ$



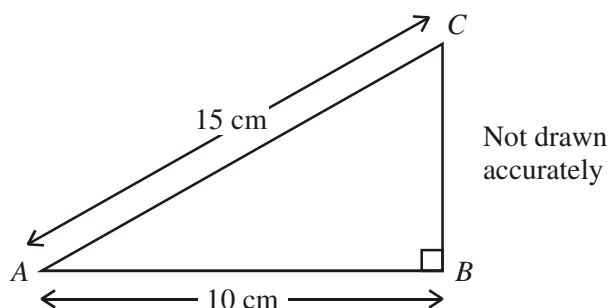
Calculate the area of $PQRS$.

(2)

(Total 6 marks)

5. (a) The diagram shows a right-angled triangle ABC .

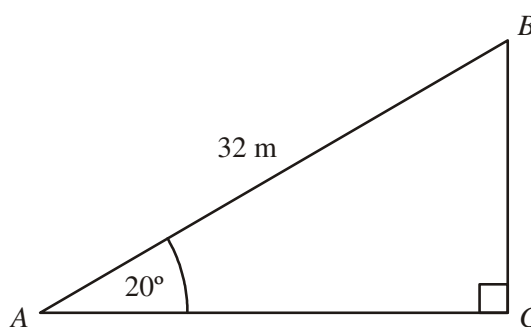
$AB = 10$ cm and $AC = 15$ cm



Calculate the length of BC .
Leave your answer as a square root.

(3)

6. The diagram shows a triangle ABC .
Angle $A = 20^\circ$ and angle $C = 90^\circ$
 $AB = 32$ m



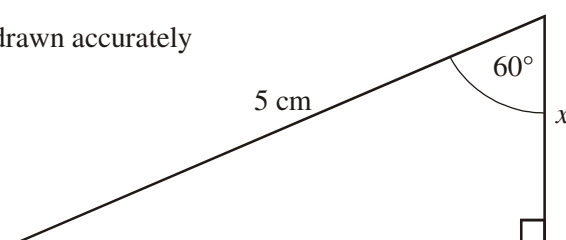
Not drawn accurately

Calculate the height BC .

(Total 3 marks)

7. Use the information in the table to calculate the value of x .

Not drawn accurately

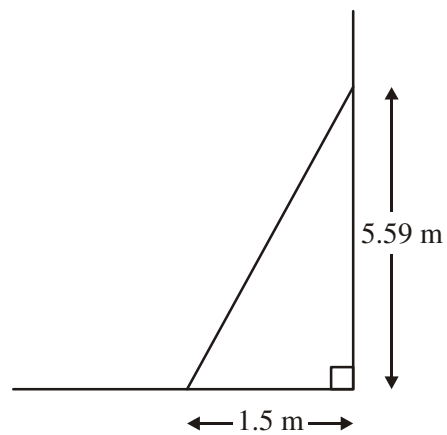


$\sin 60^\circ = 0.866$
$\cos 60^\circ = 0.5$
$\tan 60^\circ = 1.732$

(3)
(Total 3 marks)

8. For a ladder to be safe it must be inclined at between 70° and 80° to the ground.

(a) The diagram shows a ladder resting against a wall.



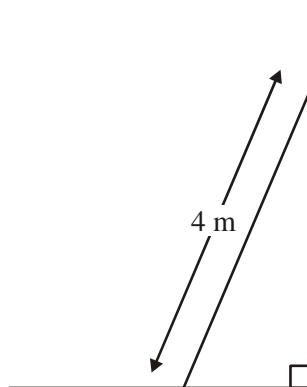
Not to scale

Is it safe?

You **must** show your working.

(3)

(b) Another ladder rests against a wall.

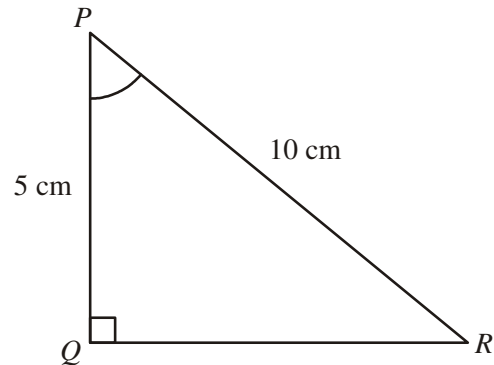


Work out the closest distance that the bottom of the ladder can be from the wall so that it is safe.

(3)

9. PQR is a right-angled triangle.
 $PR = 10$ cm and $PQ = 5$ cm

Not drawn accurately 10 cm



- (a) Calculate the length QR .

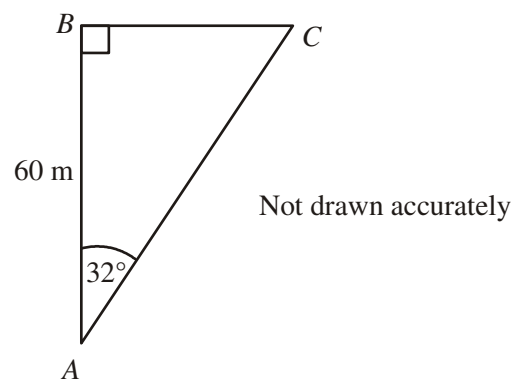
(3)

- (b) Calculate the size of angle QPR .

(3)

(Total 6 marks)

10. ABC is a right-angled triangle.
 $AB = 60$ m
Angle $BAC = 32^\circ$



Not drawn accurately

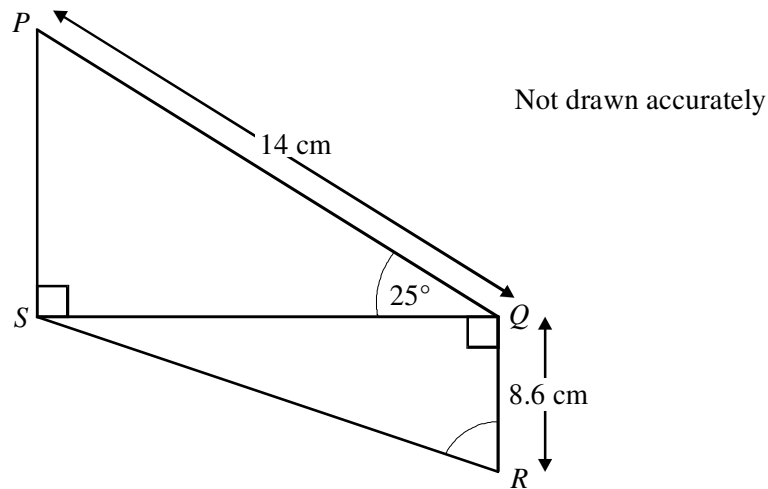
Find the length of BC .

(Total 3 marks)

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

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

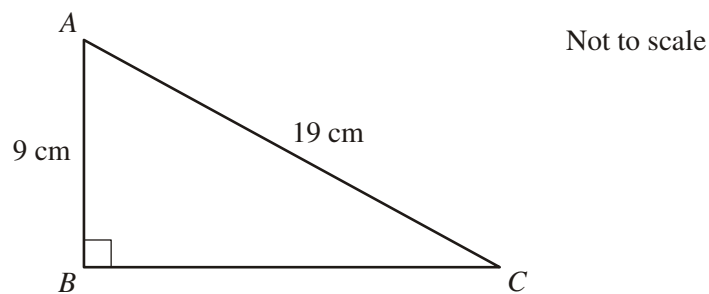
Angle $PQS = 25^\circ$



Calculate angle R .

(Total 5 marks)

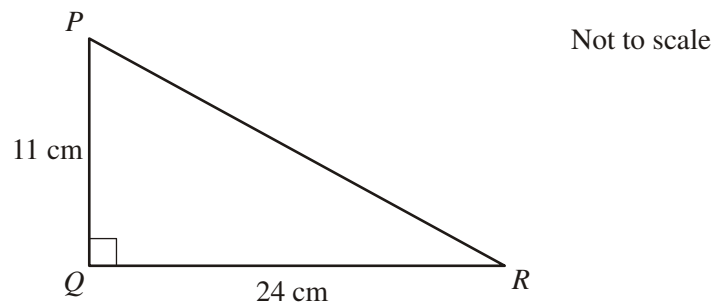
12. (a) ABC is a right-angled triangle.
 $AC = 19$ cm and $AB = 9$ cm.



Calculate the length of BC .

(3)

- (b) PQR is a right-angled triangle.
 $PQ = 11$ cm and $QR = 24$ cm.



Calculate the size of angle PRQ .

(3)

(Total 6 marks)