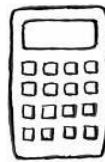


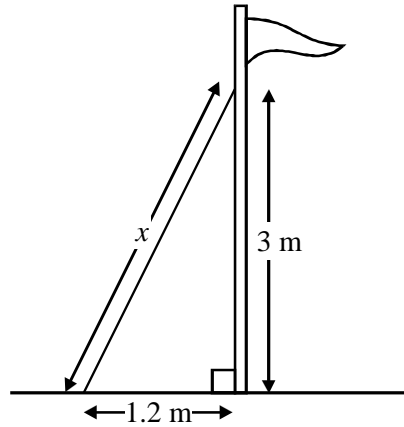
Name:

Teacher
Assessment



Section A **Pythagoras' Theorem** **Grade C**

1. A support for a flagpole is attached at a height of 3 m and is fixed to the ground at a distance of 1.2 m from the base.



Not to scale

Calculate the length of the support (marked x on the diagram).

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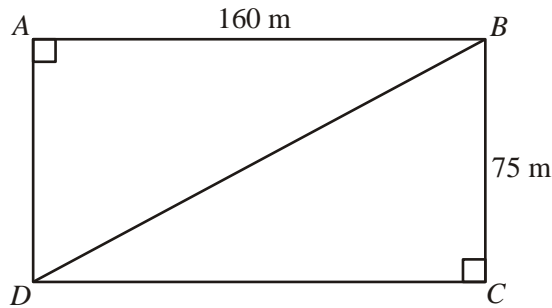
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Answer m
(Total 3 marks)

2. A rectangular field $ABCD$ is shown.
The length of the field, $AB = 160$ m.
The width of the field, $BC = 75$ m.



Not to scale

Calculate the length of the diagonal BD .

Give your answer to a suitable degree of accuracy.

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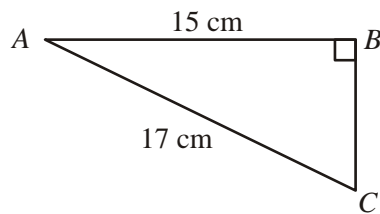
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Answerm

(Total 4 marks)

3. ABC is a right-angled triangle.
 $AB = 15$ cm and $AC = 17$ cm



Not drawn accurately

Calculate the length of the side BC .

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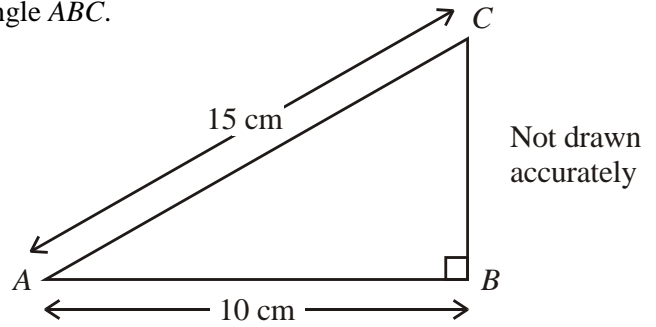
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Answercm

(Total 3 marks)

4. (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.

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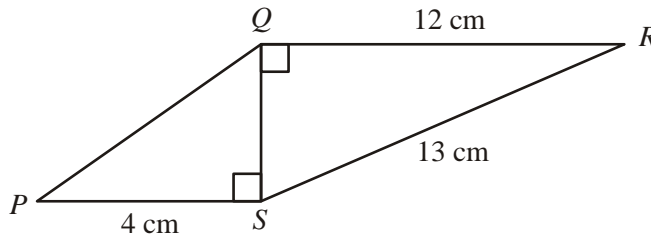
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Answer cm

(3)

(Total 3 marks)

5. $PQRS$ is a quadrilateral. Angles RQS and QSP are right angles.
 $PS = 4$ cm, $QR = 12$ cm and $RS = 13$ cm.



Not to scale

Show that the length of PQ is $\sqrt{41}$

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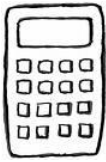
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(Total 4 marks)

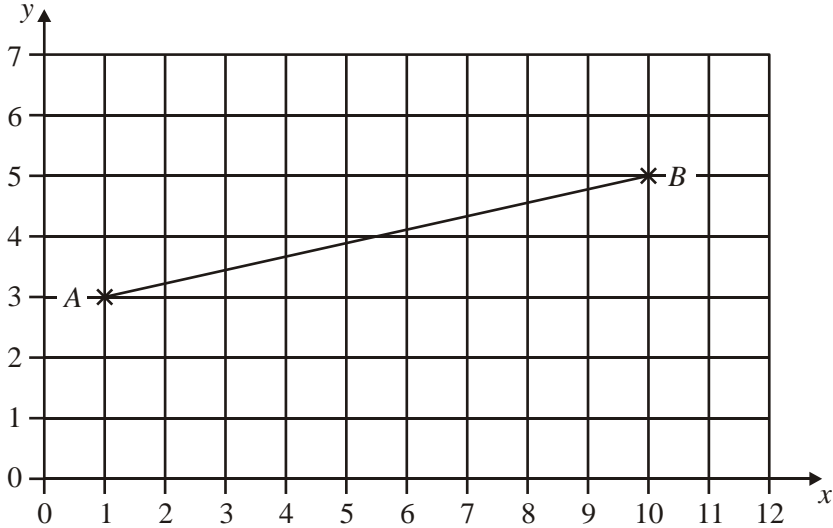
Success:

Target:



Section B **Co-ordinates** **Grade C / B**

1. The diagram shows the points $A(1, 3)$ and $B(10, 5)$.

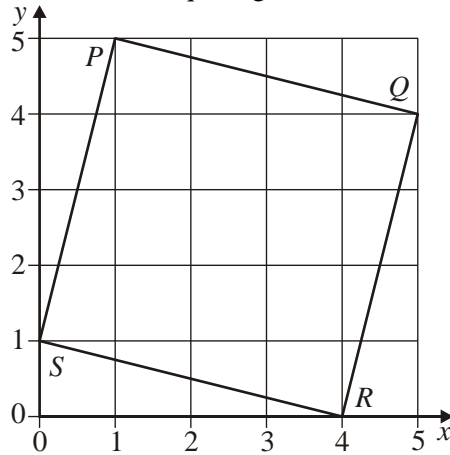


Calculate the distance AB .
Give your Answer to 2 decimal places.

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Answer units
(Total 5 marks)

2. The square $PQRS$ is drawn on a centimetre square grid.



- (a) The coordinates of P are $(1, 5)$.
Write down the coordinates of Q , R and S .

Answer Q (..... ,)
 R (..... ,)
 S (..... ,)

(2)

- (b) Calculate the area of square $PQRS$.
You **must** show your working.
State the units of your answer.

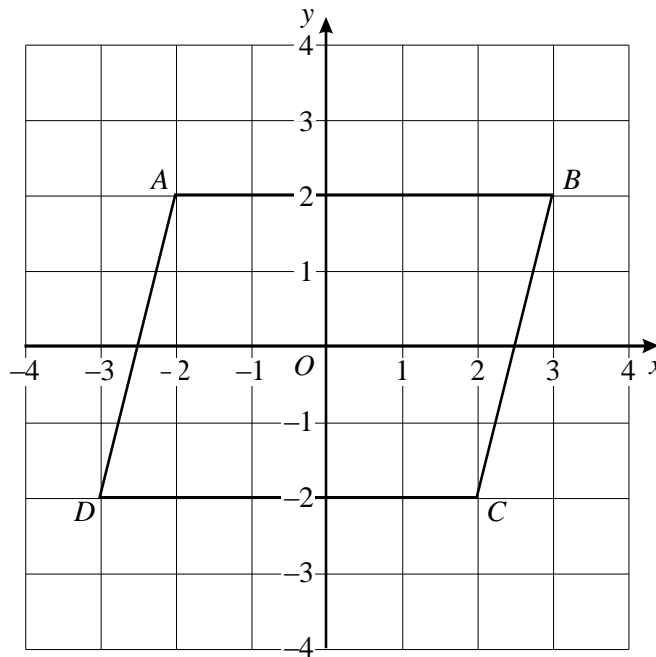
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Answer

(4)

(Total 6 marks)

3. The parallelogram $ABCD$ is drawn on a centimetre square grid.



(a) The coordinates of A are $(-2, 2)$.

Write down the coordinates of B , C and D .

Answer B (.....,) C (.....,) D (.....,) (2)

(b) Emma says that the perimeter of the parallelogram is more than 18 cm.
Explain why Emma is correct.

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(1)

(c) Calculate the area of the parallelogram.

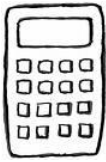
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Answer cm^2

(2)(Total 5 marks)

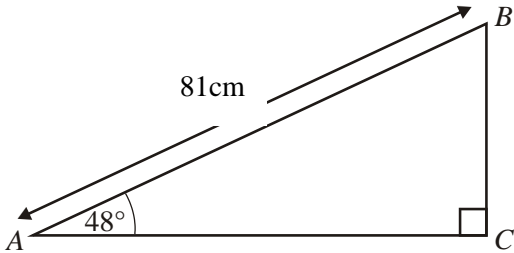
Success:

Target:



Section C Trigonometry - Finding Lengths Grade B

1. ABC is a right-angled triangle.
 $AB = 81 \text{ cm}$
 Angle $CAB = 48^\circ$



Not to scale

Find the length of BC .
 Give your answer to a suitable degree of accuracy.

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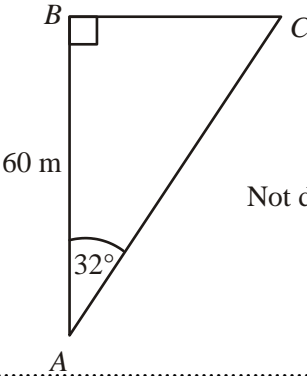
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Answer cm
 (Total 4 marks)

2. ABC is a right-angled triangle.
 $AB = 60 \text{ m}$
 Angle $BAC = 32^\circ$



Not drawn accurately

Find the length of BC .

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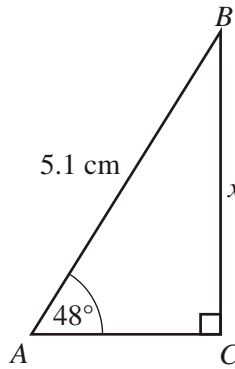
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Answer m
 (Total 3 marks)

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



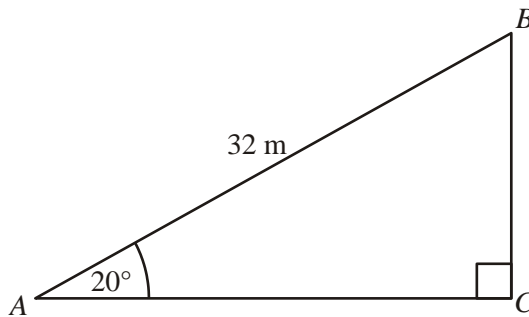
Not drawn accurately

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

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Answer cm
 (Total 4 marks)

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



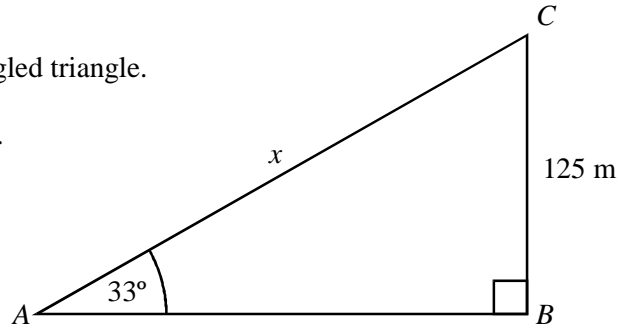
Not drawn accurately

Calculate the height BC .

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Answer m
 (Total 3 marks)

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



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

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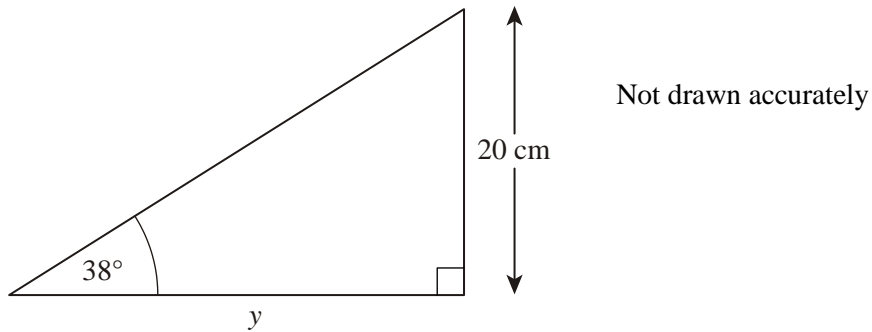
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Answer m
 (Total 4 marks)

- 6.



Calculate the length y .

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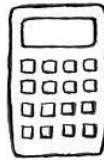
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Answer cm
 (Total 3 marks)

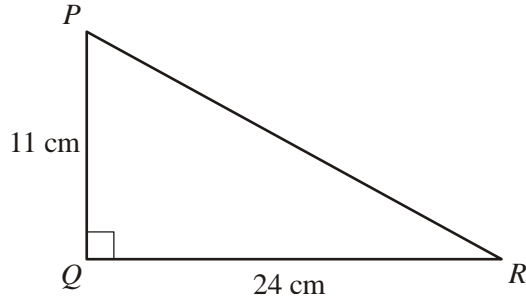
Success:

Target:



Section D Trigonometry - Finding Angles Grade B

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



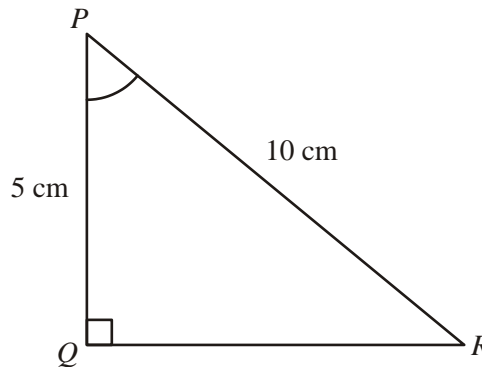
Not to scale

Calculate the size of angle PRQ .

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Answer degrees
(Total 3 marks)

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

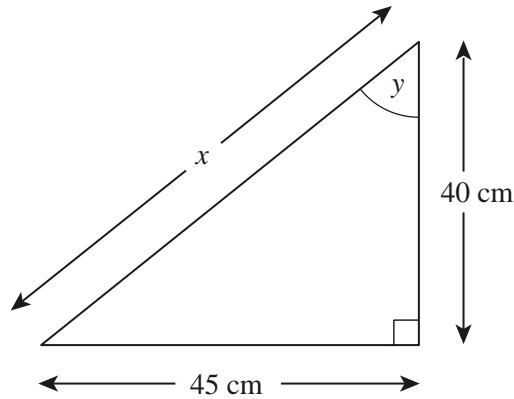


Calculate the size of angle QPR .

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Answer degrees
(Total 3 marks)

3. A right-angled triangle has the dimensions shown.



Not drawn accurately

- (a) Calculate the length x .
Give your answer to a suitable degree of accuracy.

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Answer cm

(4)

- (b) Calculate the size of angle y .
Show your working.

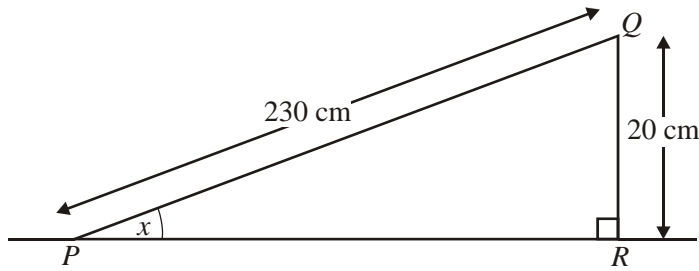
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Answer degrees

(3)

(Total 7 marks)

4. PQ is the surface of a ramp laid on level ground.
The ramp is 230 cm long and 20 cm high, as shown in the diagram.



Not to scale

Work out the size of angle x .

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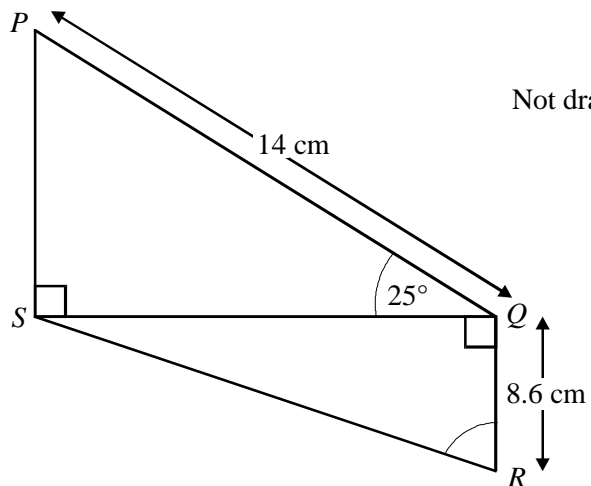
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Answer degrees
(Total 3 marks)

5. In the diagram, $PQ = 14$ cm and $QR = 8.6$ cm. Angle $PSQ =$ angle $SQR = 90^\circ$ Angle $PQS = 25^\circ$

Calculate angle R .



Not drawn accurately

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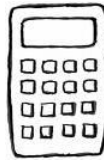
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Answer degrees
(Total 5 marks)

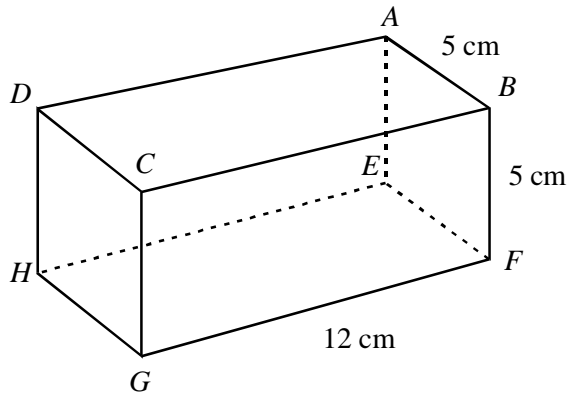
Success:

Target:



Section E Trigonometry in 3D Grade A / A*

1. $ABCDEFGH$ is a cuboid with sides of 5 cm, 5 cm and 12 cm as shown.



Not to scale

Calculate angle DFH .

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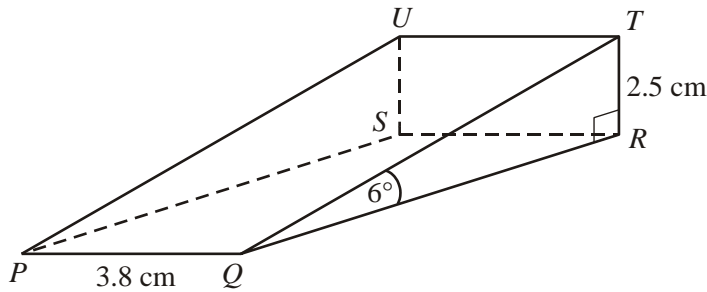
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Answer degrees
(Total 5 marks)

2. The diagram shows a door-wedge with a rectangular horizontal base $PQRS$.
 The sloping face $PQTU$ is also rectangular.
 $PQ = 3.8$ cm and angle $TQR = 6^\circ$
 The height TR is 2.5 cm.



Not drawn accurately

Calculate the length of the diagonal PT .

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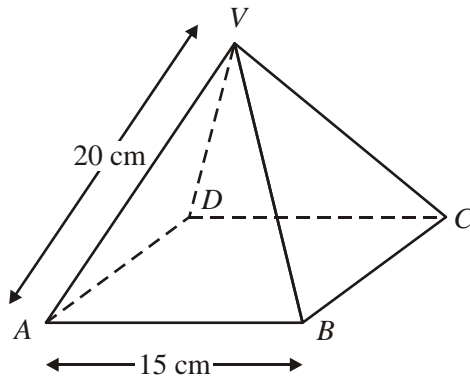
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Answer cm
 (Total 5 marks)

3. $VABCD$ is a right pyramid on a square base.
 V is vertically above the centre of the square.
 $VA = VB = VC = VD = 20$ cm
 $AB = 15$ cm



Not drawn accurately

Calculate the angle between the edge VA and the base $ABCD$.

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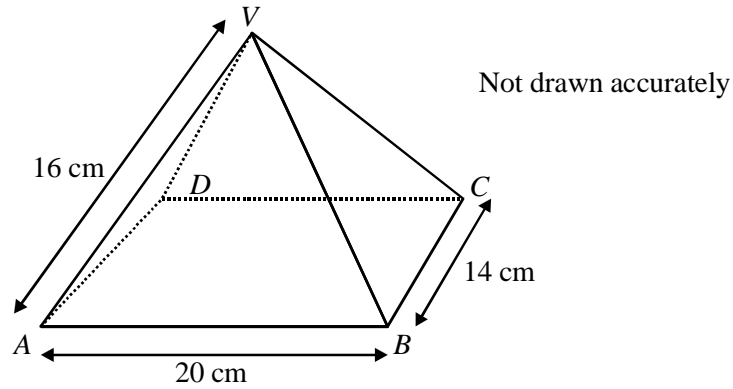
Answer degrees

(Total 5 marks)

4. $VABCD$ is a right pyramid on a rectangular base.

$$VA = VB = VC = VD = 16 \text{ cm.}$$

$$AB = 20 \text{ cm and } BC = 14 \text{ cm.}$$



Calculate the angle between the edge VC and the base $ABCD$.

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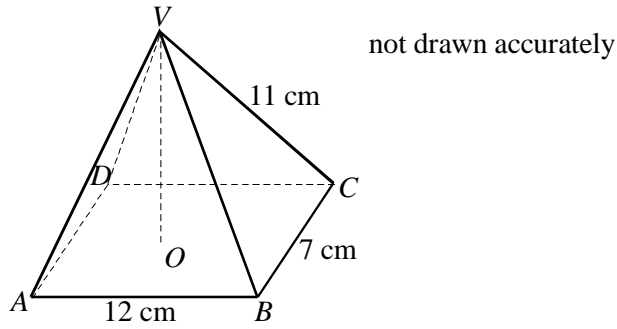
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Answer degrees
(Total 5 marks)

5. $VABCD$ is a right pyramid on a rectangular base.
 $VA = VB = VC = VD = 11$ cm.
 $OA = 12$ cm and $BC = 7$ cm.
 VO is the perpendicular height.



Calculate the angle between the edge VB and the base $ABCD$.

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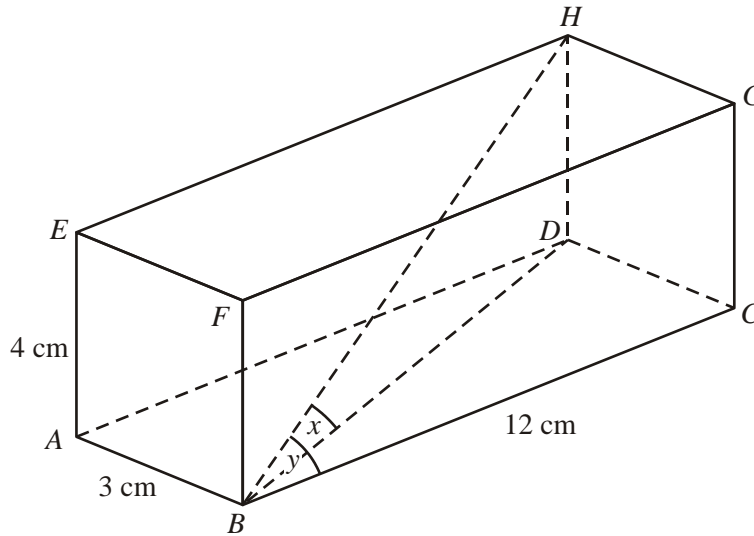
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Answer.....degrees
(Total 5 marks)

6. The diagram shows a cuboid.
 $AB = 3$ cm, $AE = 4$ cm, $BC = 12$ cm.



Not drawn accurately

- (a) Find the length of BH .

.....

Answer cm

(2)

- (b) The angle between BH and BD is x and the angle between BH and BC is y .

Which angle is bigger, x or y ?
 You **must** show your working.

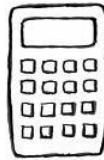
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Answer

(3)(Total 5 marks)

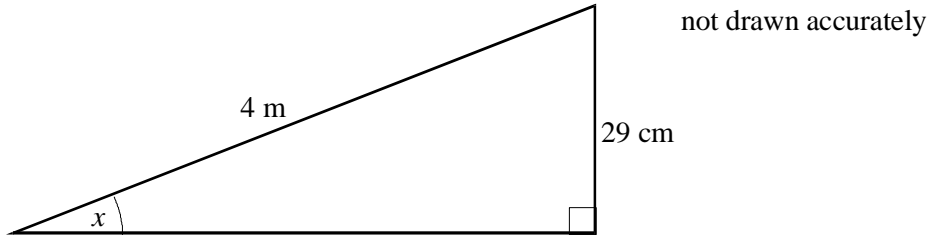
Success:

Target:



Section F **Problem Solving** **Grade A / A***

1. (a) A ramp is 4 metres long and 29 centimetres high.
If the ramp is safe for wheelchair users the angle marked x must be 4° or less.



Is this ramp safe for wheelchair users? You **must** show your working

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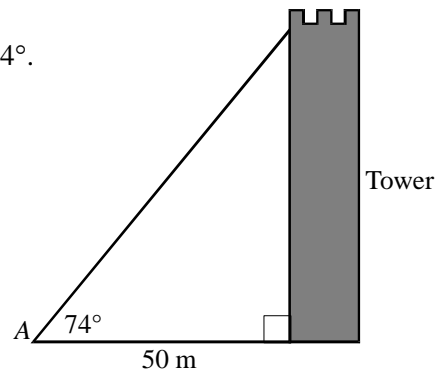
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Answer

(4)

2. The point A is 50 metres from the base of a tower.
The angle of elevation of the top of the tower from A is 74° .



- (i) Calculate the height of the tower. Give your answer to a suitable degree of accuracy.

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Answer m

(4)

- (ii) What is the angle of depression of the point A from the top of the tower?

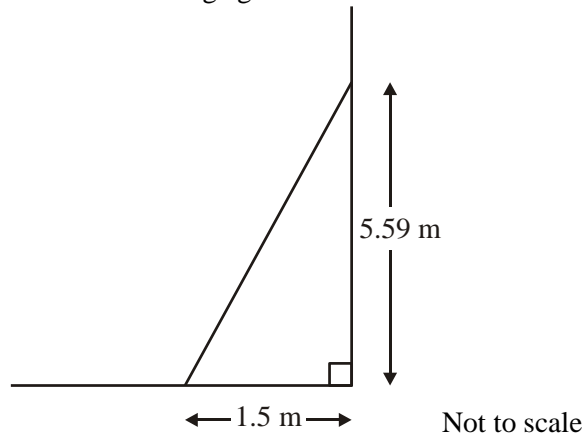
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Answer degrees

(1)(Total 5 marks)

3. 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.

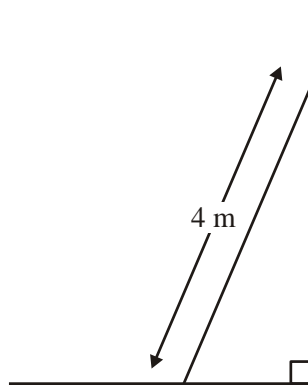


Is it safe? You **must** show your working.

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(3)

(b) Another ladder rests against a wall.



Not to scale

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

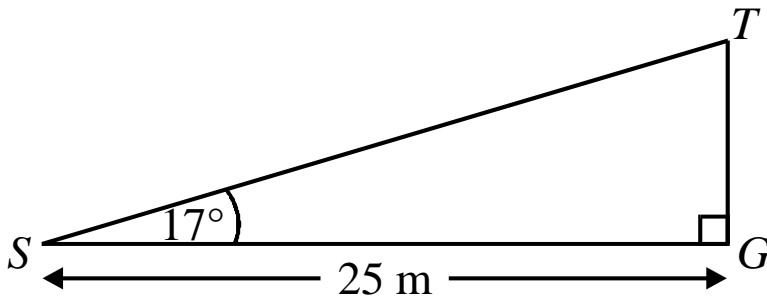
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Answer m

(3)(Total 6 marks)

4. (a) Sadhia stands 25 m from the base of a tree.

The angle of elevation of the top of the tree is 17° .



not drawn accurately

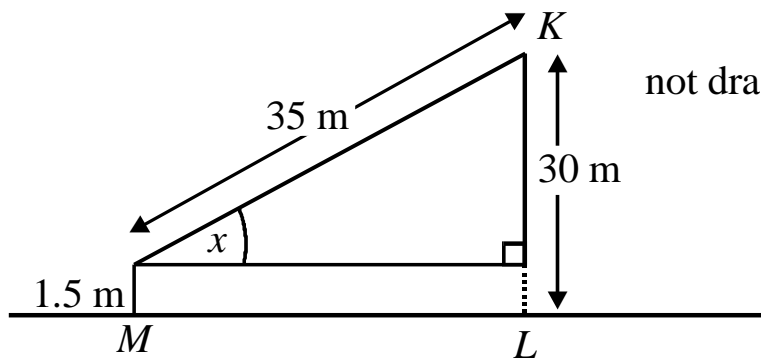
Calculate the height of the tree, TG .

.....

Answer.....m

(3)

- (b) Max is holding the string of a kite which is flying 30 metres above the ground.
 His height is 1.5 metres.
 The string is straight and its length is 35 metres.



not drawn accurately

Calculate the angle x between the string and the ground.

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Answer $x =$ degrees

(3)(Total 6 marks)

Success:

Target: