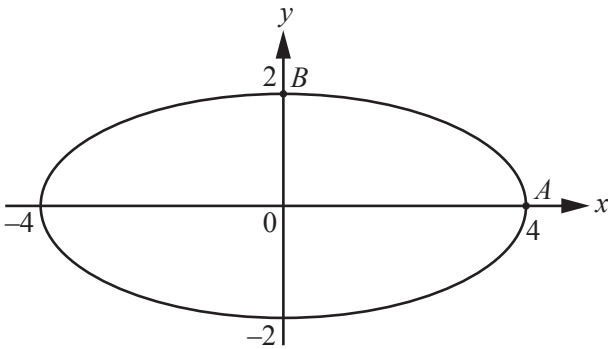


1. Question part 1/2 | 0580 May-June 2016 P4 V1 Q9

9



NOT TO
SCALE

The diagram shows a curve with equation $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$.

- (a) A is the point $(4, 0)$ and B is the point $(0, 2)$.
 - (i) Find the equation of the straight line that passes through A and B .
Give your answer in the form $y = mx + c$.

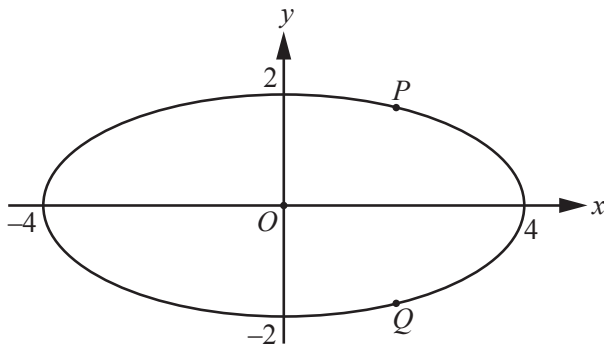
$y = \dots\dots\dots [3]$

- (ii) Show that $a^2 = 16$ and $b^2 = 4$.

[2]

1. Question part 2/2 | 0580 May-June 2016 P4 V1 Q9

(b)



NOT TO
SCALE

$P(2, k)$ and $Q(2, -k)$ are points on the curve $\frac{x^2}{16} + \frac{y^2}{4} = 1$.

(i) Find the value of k .

$k = \dots\dots\dots [3]$

(ii) Calculate angle POQ .

Angle $POQ = \dots\dots\dots [3]$

(c) The area enclosed by a curve with equation $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ is πab .

(i) Find the area enclosed by the curve $\frac{x^2}{16} + \frac{y^2}{4} = 1$.

Give your answer as a multiple of π .

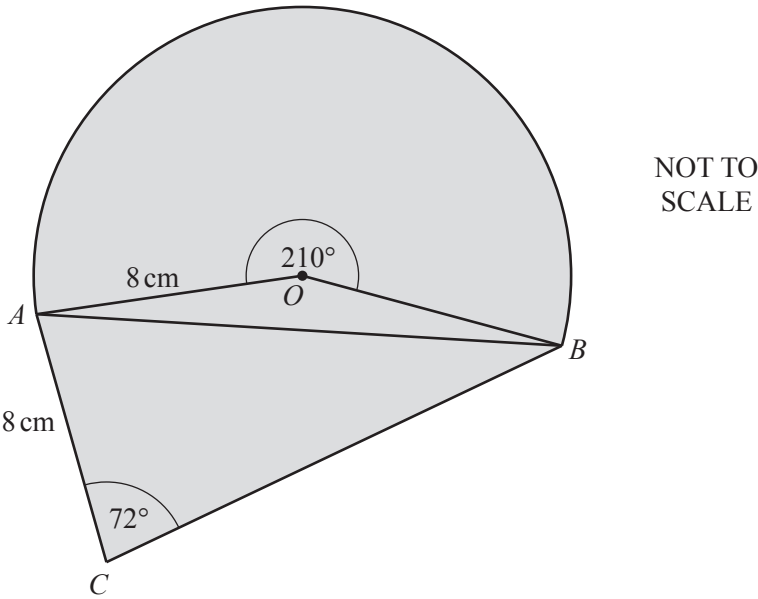
$\dots\dots\dots [1]$

(ii) A curve, mathematically similar to the one in the diagrams, intersects the x -axis at $(12, 0)$ and $(-12, 0)$.

Work out the area enclosed by this curve, giving your answer as a multiple of π .

$\dots\dots\dots [2]$

7



The diagram shows a design for a logo made from a sector and two triangles.
The sector, centre O , has radius 8 cm and sector angle 210° .
 $AC = 8\text{ cm}$ and angle $ACB = 72^\circ$.

(a) Show that angle $OAB = 15^\circ$.

[2]

(b) Calculate the length of the straight line AB .

$AB = \dots\dots\dots\text{ cm}$ [4]

(c) Calculate angle ABC .

Angle $ABC = \dots\dots\dots$ [3]

(d) Calculate the total area of the logo design.

$\dots\dots\dots\text{cm}^2$ [6]

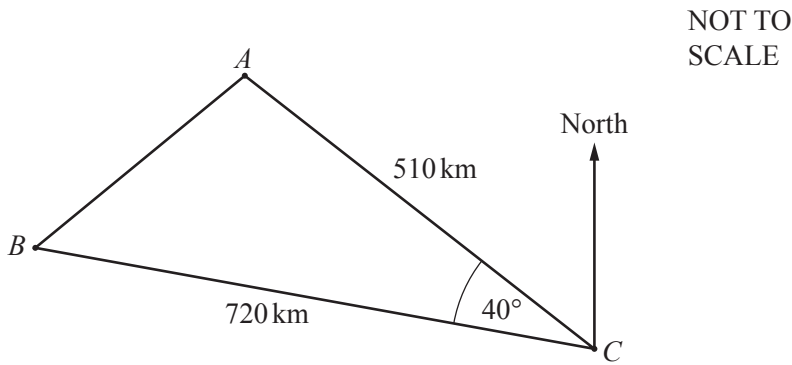
(e) The logo design is an enlargement with scale factor 4 of the actual logo.

Calculate the area of the actual logo.

$\dots\dots\dots\text{cm}^2$ [2]

3. Question | 0580 May-June 2016 P4 V3 Q5

5



A plane flies from A to C and then from C to B .
 $AC = 510\text{ km}$ and $CB = 720\text{ km}$.
The bearing of C from A is 135° and angle $ACB = 40^\circ$.

(a) Find the bearing of

(i) B from C ,

..... [2]

(ii) C from B .

..... [2]

(b) Calculate AB and show that it rounds to 464.7 km , correct to 1 decimal place.

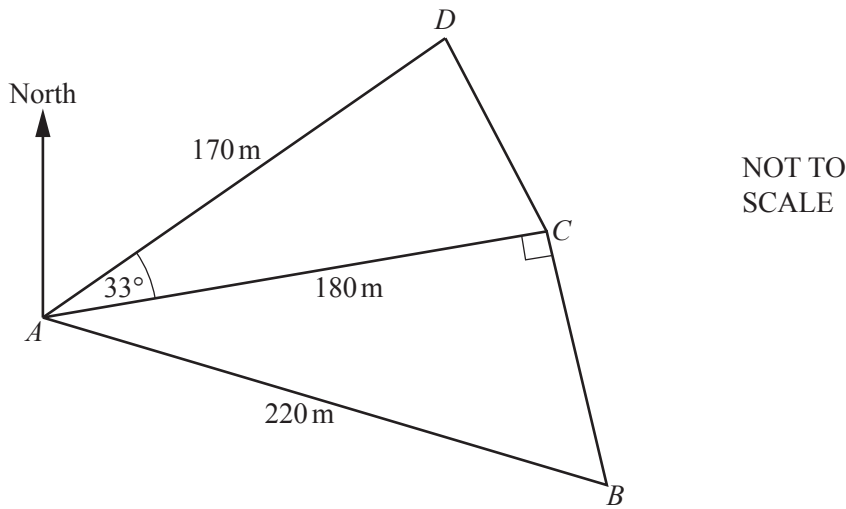
[4]

(c) Calculate angle ABC .

Angle $ABC =$ [3]

4. Question part 1/2 | 0580 Oct-Nov 2016 P4 V1 Q6

6



The diagram shows five straight footpaths in a park.
 $AB = 220\text{ m}$, $AC = 180\text{ m}$ and $AD = 170\text{ m}$.
Angle $ACB = 90^\circ$ and angle $DAC = 33^\circ$.

(a) Calculate BC .

$BC = \dots\dots\dots\text{ m [3]}$

(b) Calculate CD .

$CD = \dots\dots\dots\text{ m [4]}$

4. Question part 2/2 | 0580 Oct-Nov 2016 P4 V1 Q6

(c) Calculate the shortest distance from D to AC .

..... m [2]

(d) The bearing of D from A is 047° .

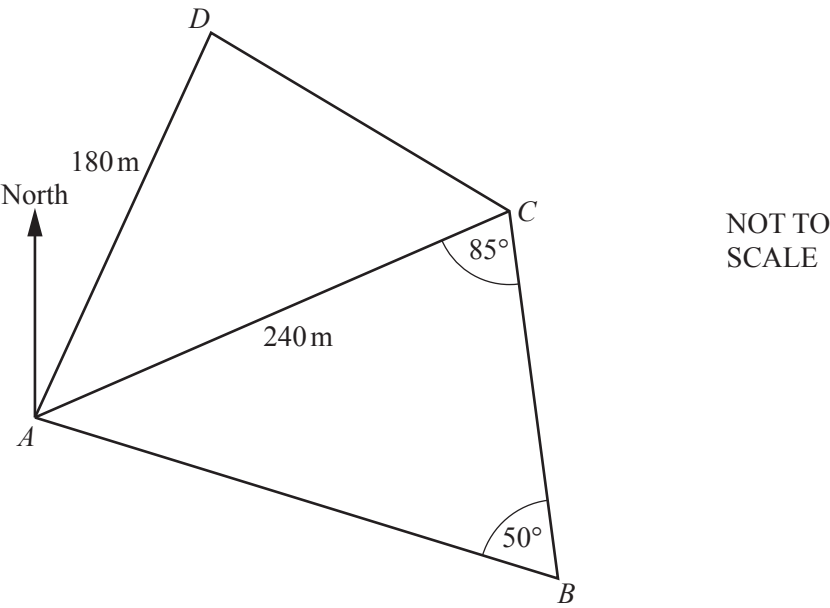
Calculate the bearing of B from A .

..... [3]

(e) Calculate the area of the quadrilateral $ABCD$.

.....m² [3]

3



The diagram shows a field, $ABCD$.
 $AD = 180\text{ m}$ and $AC = 240\text{ m}$.
Angle $ABC = 50^\circ$ and angle $ACB = 85^\circ$.

(a) Use the sine rule to calculate AB .

$AB = \dots\dots\dots\text{ m [3]}$

(b) The area of triangle $ACD = 12\,000\text{ m}^2$.

Show that angle $CAD = 33.75^\circ$, correct to 2 decimal places.

(c) Calculate BD .

$BD = \dots\dots\dots$ m [5]

(d) The bearing of D from A is 030° .

Find the bearing of

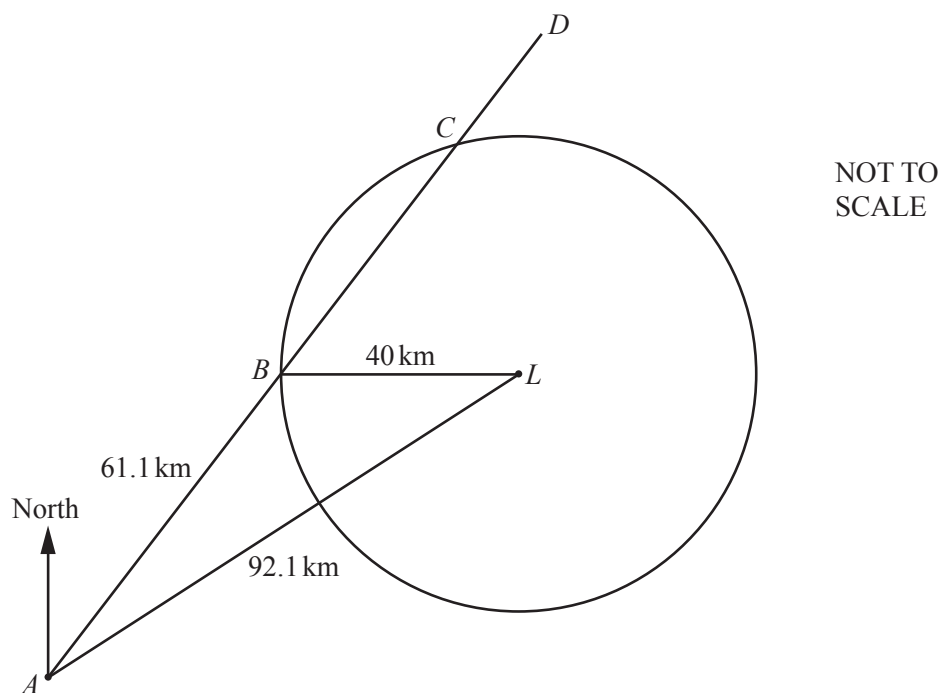
(i) B from A ,

$\dots\dots\dots$ [1]

(ii) A from B .

$\dots\dots\dots$ [2]

6



The diagram shows the position of a port, A , and a lighthouse, L .

The circle, centre L and radius 40 km , shows the region where the light from the lighthouse can be seen.

The straight line, $ABCD$, represents the course taken by a ship after leaving the port.

When the ship reaches position B it is due west of the lighthouse.

$AL = 92.1\text{ km}$, $AB = 61.1\text{ km}$ and $BL = 40\text{ km}$.

(a) Use the cosine rule to show that angle $ABL = 130.1^\circ$, correct to 1 decimal place.

(b) Calculate the bearing of the lighthouse, L , from the port, A .

..... [4]

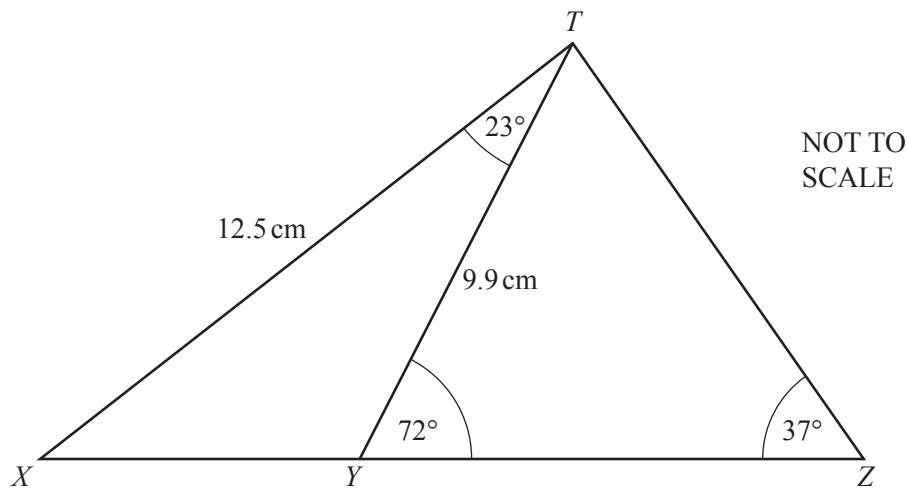
(c) The ship sails at a speed of 28 km/h.

Calculate the length of time for which the light from the lighthouse can be seen from the ship.
Give your answer correct to the nearest minute.

..... h min [5]

7. Question part 1/2 | 0580 Feb-March 2017 P4 V2 Q8

- 8 (a) In triangle TXZ , $TX = 12.5$ cm and angle $TZX = 37^\circ$.
 Y is a point on the line XZ such that $TY = 9.9$ cm, angle $XTY = 23^\circ$ and angle $TYZ = 72^\circ$.



- (i) Calculate XY .

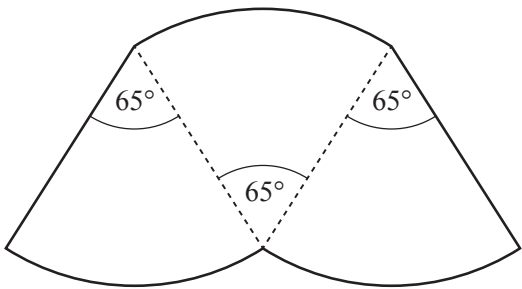
$XY = \dots\dots\dots$ cm [4]

- (ii) Calculate TZ .

$TZ = \dots\dots\dots$ cm [3]

7. Question part 2/2 | 0580 Feb-March 2017 P4 V2 Q8

- (b) The diagram shows a shape made up of three identical sectors of a circle, each with sector angle 65° . The perimeter of the shape is 20.5 cm.



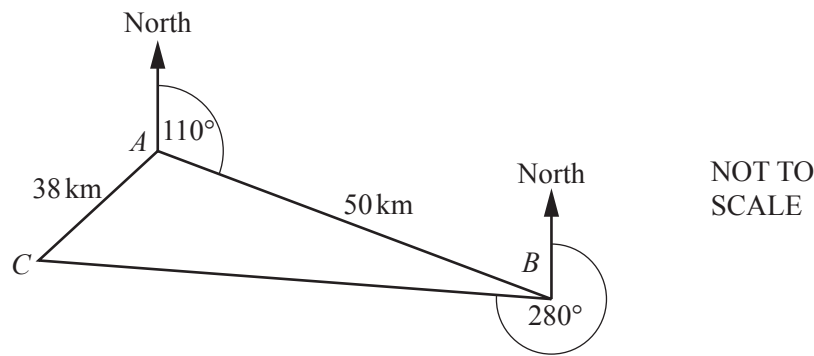
NOT TO
SCALE

Calculate the radius of the circle.

..... cm [4]

8. Question part 1/2 | 0580 May-June 2017 P4 V1 Q8

8 (a)



A , B and C are three towns.
The bearing of B from A is 110° .
The bearing of C from B is 280° .
 $AC = 38\text{ km}$ and $AB = 50\text{ km}$.

(i) Find the bearing of A from B .

..... [2]

(ii) Calculate angle BAC .

Angle $BAC =$ [5]

(iii) A road is built from A to join the straight road BC .

Calculate the shortest possible length of this new road.

..... km [3]

8. Question part 2/2 | 0580 May-June 2017 P4 V1 Q8

- (b) Town A has a rectangular park.
The length of the park is x m.
The width of the park is 25 m shorter than the length.
The area of the park is 2200 m^2 .

(i) Show that $x^2 - 25x - 2200 = 0$.

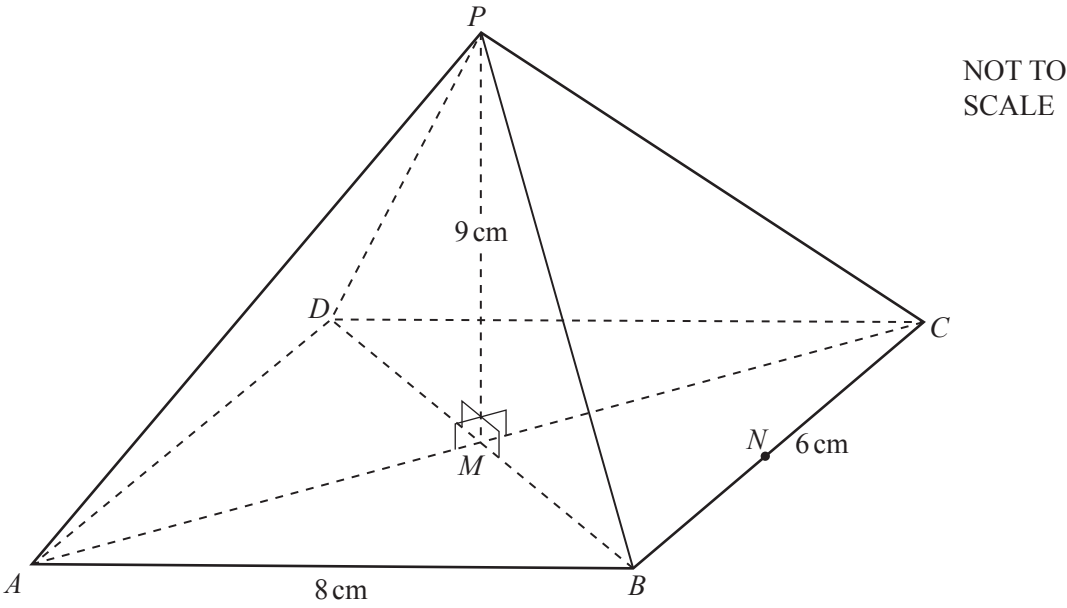
[1]

- (ii) Solve $x^2 - 25x - 2200 = 0$.
Show all your working and give your answers correct to 2 decimal places.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$ [4]

Question 9 is printed on the next page.

8



The diagram shows a pyramid on a rectangular base $ABCD$.
 AC and BD intersect at M and P is vertically above M .
 $AB = 8\text{ cm}$, $BC = 6\text{ cm}$ and $PM = 9\text{ cm}$.

- (a) N is the midpoint of BC .

Calculate angle PNM .

Angle $PNM = \dots\dots\dots$ [2]

- (b) Show that $BM = 5\text{ cm}$.

[1]

(c) Calculate the angle between the edge PB and the base $ABCD$.

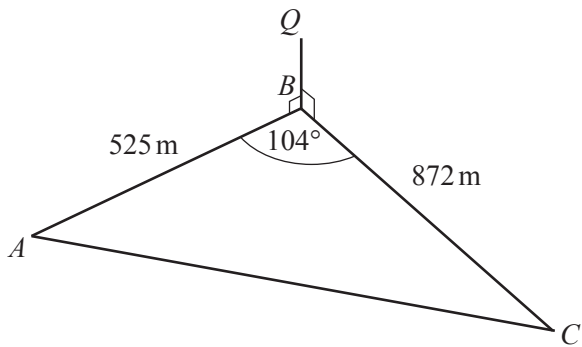
..... [2]

(d) A point X is on PC so that $PX = 7.5$ cm.
Calculate BX .

$BX =$ cm [6]

10. Question part 1/2 | 0580 May-June 2017 P4 V3 Q9

9



NOT TO
SCALE

ABC is a triangular field on horizontal ground.
There is a vertical pole BQ at B .
 $AB = 525\text{ m}$, $BC = 872\text{ m}$ and angle $ABC = 104^\circ$.

(a) Use the cosine rule to calculate the distance AC .

$AC = \dots\dots\dots\text{ m}$ [4]

(b) The angle of elevation of Q from C is 1.0° .

Showing all your working, calculate the angle of elevation of Q from A .

$\dots\dots\dots$ [4]

10. Question part 2/2 | 0580 May-June 2017 P4 V3 Q9

(c) (i) Calculate the area of the field.

..... m² [2]

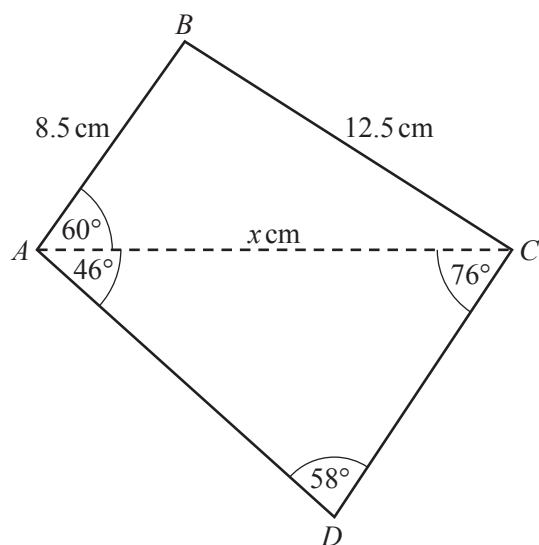
(ii) The field is drawn on a map with the scale 1 : 20 000.

Calculate the area of the field on the map in cm².

.....cm² [2]

11. Question part 1/2 | 0580 Oct-Nov 2017 P4 V1 Q10

10

NOT TO
SCALE

The diagram shows a quadrilateral $ABCD$.

(a) The length of AC is $x \text{ cm}$.

Use the cosine rule in triangle ABC to show that $2x^2 - 17x - 168 = 0$.

[4]

(b) Solve the equation $2x^2 - 17x - 168 = 0$.

Show all your working and give your answers correct to 2 decimal places.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$ [4]

11. Question part 2/2 | 0580 Oct-Nov 2017 P4 V1 Q10

(c) Use the sine rule to calculate the length of CD .

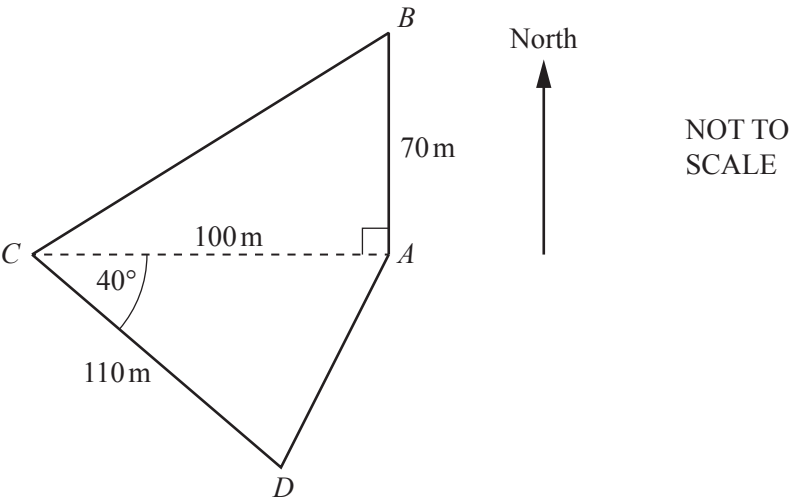
$CD = \dots\dots\dots \text{ cm [3]}$

(d) Calculate the area of the quadrilateral $ABCD$.

$\dots\dots\dots \text{ cm}^2 \text{ [3]}$

12. Question part 1/2 | 0580 Oct-Nov 2017 P4 V2 Q3

3



The diagram shows a field $ABCD$.

(a) Calculate the area of the field $ABCD$.

..... m^2 [3]

(b) Calculate the perimeter of the field $ABCD$.

..... m [5]

12. Question part 2/2 | 0580 Oct-Nov 2017 P4 V2 Q3

(c) Calculate the shortest distance from A to CD .

..... m [2]

(d) B is due north of A .

Find the bearing of C from B .

..... [3]

13. Question | 0580 Oct-Nov 2017 P4 V3 Q1

- 1
- (a)

The angles of a triangle are in the ratio 2 : 3 : 5.

(i)

Show that the triangle is right-angled.

[1]

- (ii)

The length of the hypotenuse of the triangle is 12 cm.

Use trigonometry to calculate the length of the shortest side of this triangle.

..... cm [3]

- (b)

The sides of a different right-angled triangle are in the ratio 3 : 4 : 5.

(i)

The length of the shortest side is 7.8 cm.

Calculate the length of the longest side.

..... cm [2]

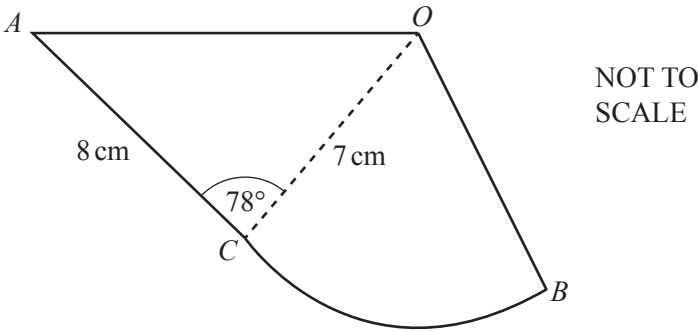
- (ii)

Calculate the smallest angle in this triangle.

..... [3]

14. Question part 1/2 | 0580 May-June 2018 P4 V2 Q5

5



The diagram shows a design made from a triangle AOC joined to a sector OCB .
 $AC = 8\text{ cm}$, $OB = OC = 7\text{ cm}$ and angle $ACO = 78^\circ$.

- (a) Use the cosine rule to show that $OA = 9.47\text{ cm}$, correct to 2 decimal places.

[4]

- (b) Calculate angle OAC .

Angle $OAC = \dots\dots\dots$ [3]

14. Question part 2/2 | 0580 May-June 2018 P4 V2 Q5

(c) The perimeter of the design is 29.5 cm.

Show that angle $COB = 41.2^\circ$, correct to 1 decimal place.

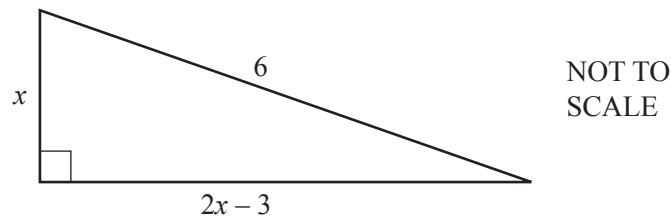
[5]

(d) Calculate the total area of the design.

..... cm² [4]

15. Question | 0580 May-June 2018 P4 V2 Q7

7 In this question, all measurements are in metres.



The diagram shows a right-angled triangle.

(a) Show that $5x^2 - 12x - 27 = 0$.

[3]

(b) Solve $5x^2 - 12x - 27 = 0$.
Show all your working and give your answers correct to 2 decimal places.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$ [4]

(c) Calculate the perimeter of the triangle.

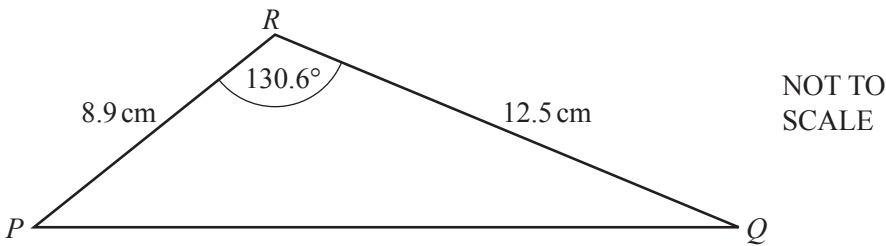
$\dots\dots\dots$ m [2]

(d) Calculate the smallest angle of the triangle.

$\dots\dots\dots$ [2]

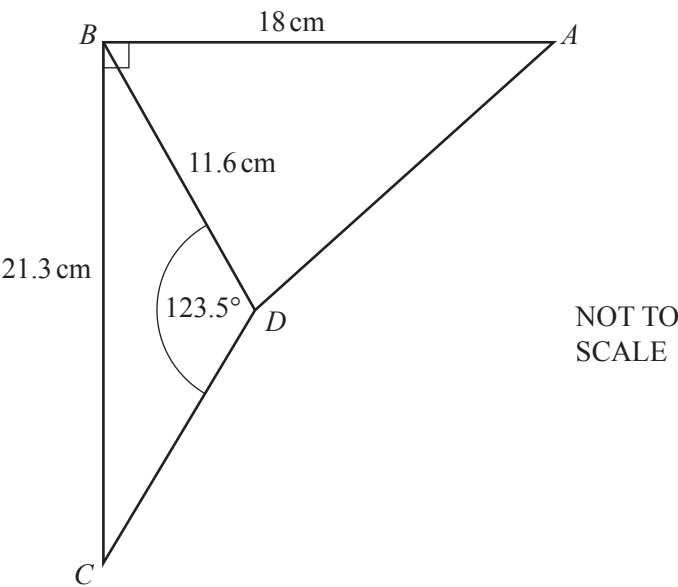
16. Question part 1/2 | 0580 Oct-Nov 2018 P4 V1 Q7

7 (a)



Calculate the area of triangle PQR .

(b)



..... cm^2 [2]

In the diagram, $AB = 18\text{ cm}$, $BC = 21.3\text{ cm}$ and $BD = 11.6\text{ cm}$.
Angle $BDC = 123.5^\circ$ and angle ABC is a right angle.

(i) Calculate angle BCD .

Angle $BCD =$ [3]

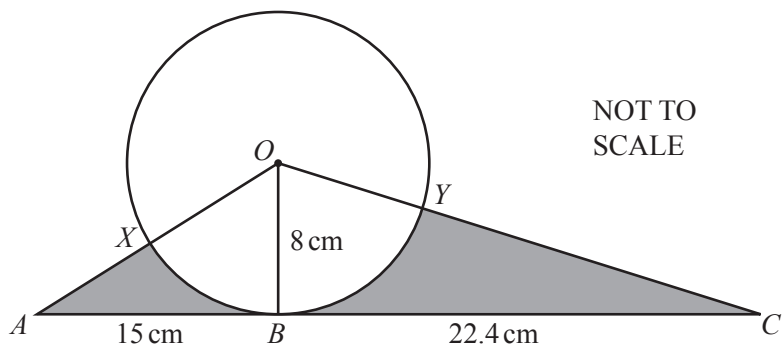
16. Question part 2/2 | 0580 Oct-Nov 2018 P4 V1 Q7

(ii) Calculate AD .

$AD = \dots\dots\dots$ cm [5]

17. Question part 1/2 | 0580 Oct-Nov 2018 P4 V1 Q10

10



The diagram shows a circle, centre O .
The straight line ABC is a tangent to the circle at B .
 $OB = 8\text{ cm}$, $AB = 15\text{ cm}$ and $BC = 22.4\text{ cm}$.
 AO crosses the circle at X and OC crosses the circle at Y .

(a) Calculate angle XOY .

Angle $XOY = \dots\dots\dots$ [5]

(b) Calculate the length of the arc XY .

$\dots\dots\dots$ cm [2]

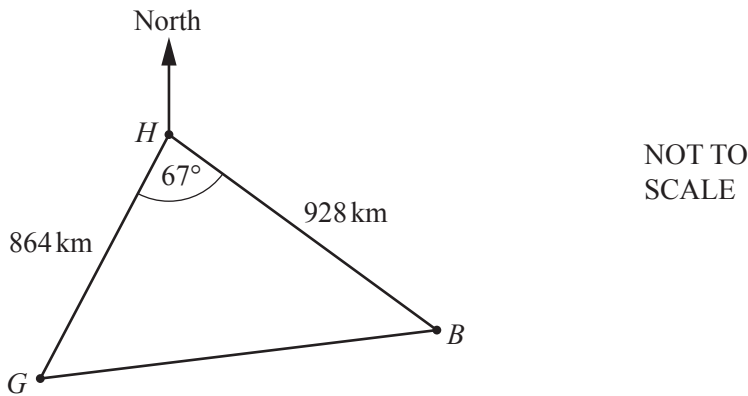
(c) Calculate the total area of the two shaded regions.

..... cm² [4]

Question 11 is printed on the next page.

18. Question part 1/2 | 0580 Oct-Nov 2018 P4 V2 Q8

8 The diagram shows the positions of three cities, Geneva (G), Budapest (B) and Hamburg (H).



- (a) A plane flies from Geneva to Hamburg.
The flight takes 2 hours 20 minutes.

Calculate the average speed in kilometres per hour.

..... km/h [2]

- (b) Use the cosine rule to calculate the distance from Geneva to Budapest.

..... km [4]

- (c) The bearing of Budapest from Hamburg is 133° .
 - (i) Find the bearing of Hamburg from Budapest.

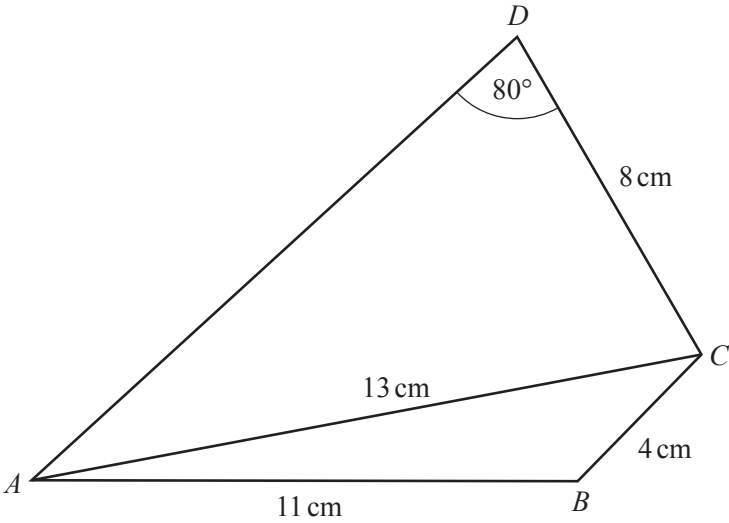
..... [2]

- (ii) Calculate the bearing of Budapest from Geneva.

..... [4]

19. Question part 1/2 | 0580 Oct-Nov 2018 P4 V3 Q6

6



NOT TO
SCALE

(a) Calculate angle ACB .

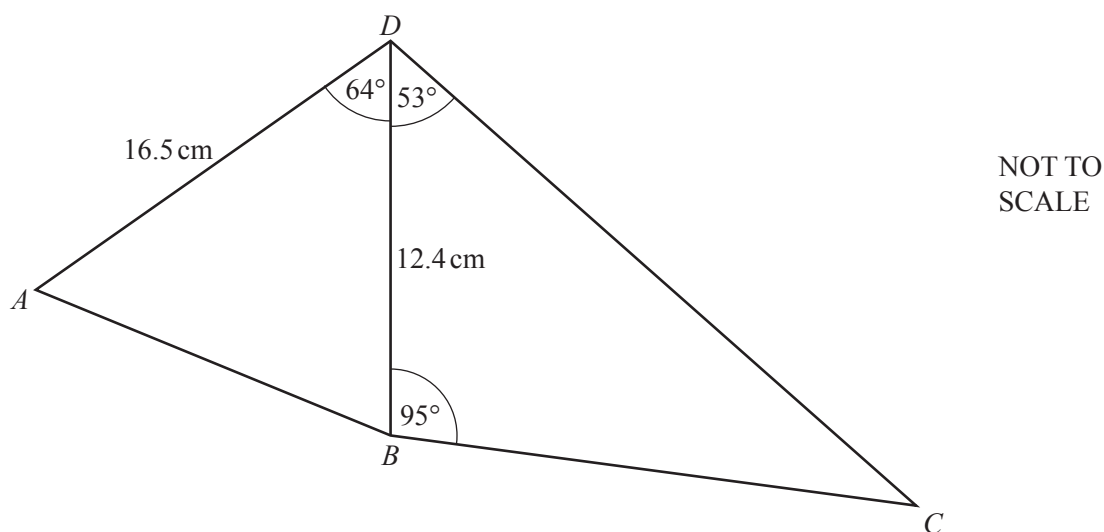
Angle $ACB = \dots\dots\dots$ [4]

(b) Calculate angle ACD .

Angle $ACD = \dots\dots\dots$ [4]

(c) Calculate the area of the quadrilateral $ABCD$.

..... cm^2 [3]

8 (a)

The diagram shows two triangles ABD and BCD .

$AD = 16.5$ cm and $BD = 12.4$ cm.

Angle $ADB = 64^\circ$, angle $BDC = 53^\circ$ and angle $DBC = 95^\circ$.

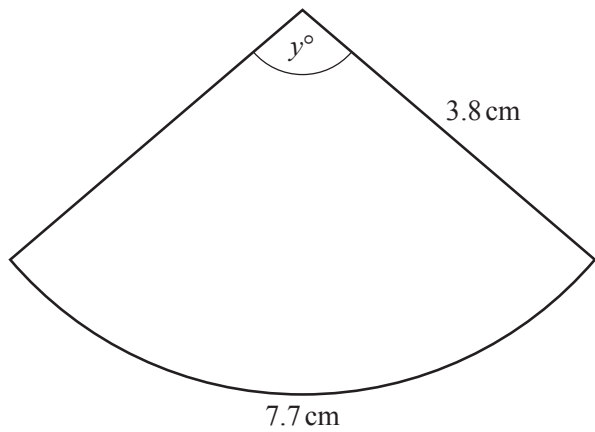
(i) Find AB .

$AB = \dots\dots\dots$ cm [4]

(ii) Find BC .

$BC = \dots\dots\dots$ cm [4]

(b)



NOT TO
SCALE

The diagram shows a sector of a circle of radius 3.8 cm.
The arc length is 7.7 cm.

(i) Calculate the value of y .

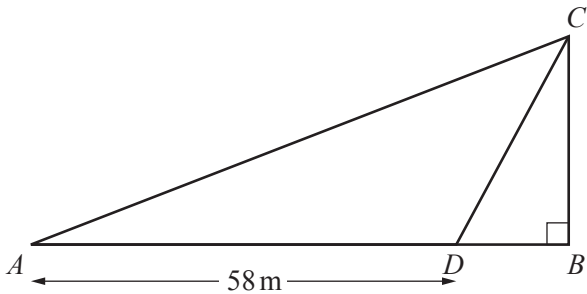
$y = \dots\dots\dots$ [2]

(ii) Calculate the area of the sector.

$\dots\dots\dots \text{ cm}^2$ [2]

21. Question part 1/2 | 0580 May-June 2019 P4 V3 Q9

9 (a)



NOT TO
SCALE

In the diagram, BC is a vertical wall standing on horizontal ground AB .
 D is the point on AB where $AD = 58\text{ m}$.
The angle of elevation of C from A is 26° .
The angle of elevation of C from D is 72° .

(i) Show that $AC = 76.7\text{ m}$, correct to 1 decimal place.

[5]

(ii) Calculate BD .

$BD = \dots\dots\dots\text{ m}$ [3]

21. Question part 2/2 | 0580 May-June 2019 P4 V3 Q9

- (b) Triangle EFG has an area of 70 m^2 .
 $EF : FG = 1 : 2$ and angle $EFG = 40^\circ$.

- (i) Calculate EF .

$EF = \dots\dots\dots \text{ m}$ [4]

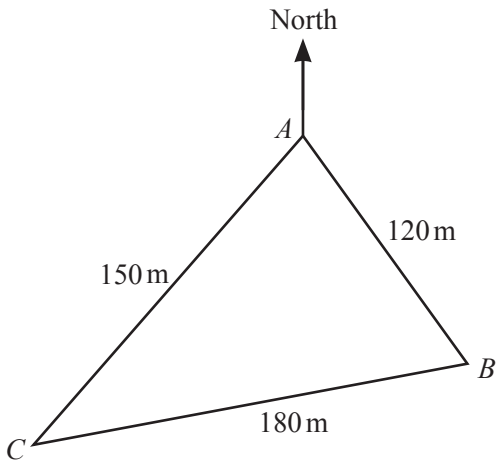
- (ii) A **different** triangle PQR also has an area of 70 m^2 .
 $PQ : QR = 1 : 2$ and $PQ = EF$.

Find angle PQR .

Angle $PQR = \dots\dots\dots$ [1]

Question 10 is printed on the next page.

5



NOT TO
SCALE

The diagram shows a triangular field, ABC , on horizontal ground.

- (a) Olav runs from A to B at a constant speed of 4 m/s and then from B to C at a constant speed of 3 m/s .
He then runs at a constant speed from C to A .
His average speed for the whole journey is 3.6 m/s .

Calculate his speed when he runs from C to A .

..... m/s [3]

- (b) Use the cosine rule to find angle BAC .

Angle $BAC =$ [4]

22. Question part 2/2 | 0580 Oct-Nov 2019 P4 V1 Q5

(c) The bearing of C from A is 210° .

(i) Find the bearing of B from A .

..... [1]

(ii) Find the bearing of A from B .

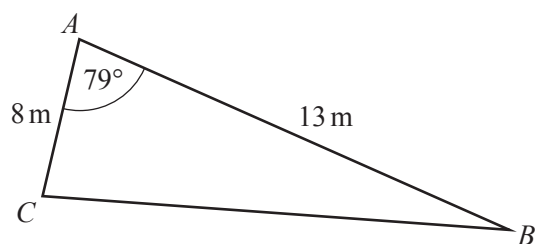
..... [2]

(d) D is the point on AC that is nearest to B .

Calculate the distance from D to A .

..... m [2]

23. Question part 1/2 | 0580 Oct-Nov 2019 P4 V2 Q6

6 (a)NOT TO
SCALE

The diagram shows triangle ABC .

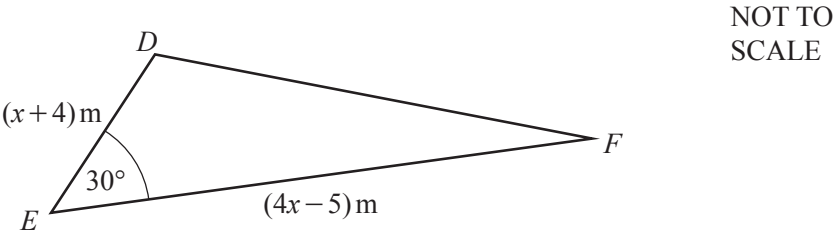
(i) Use the cosine rule to calculate BC .

$BC = \dots\dots\dots$ m [4]

(ii) Use the sine rule to calculate angle ACB .

Angle $ACB = \dots\dots\dots$ [3]

(b)



The area of triangle DEF is 70 m^2 .

(i) Show that $4x^2 + 11x - 300 = 0$.

[4]

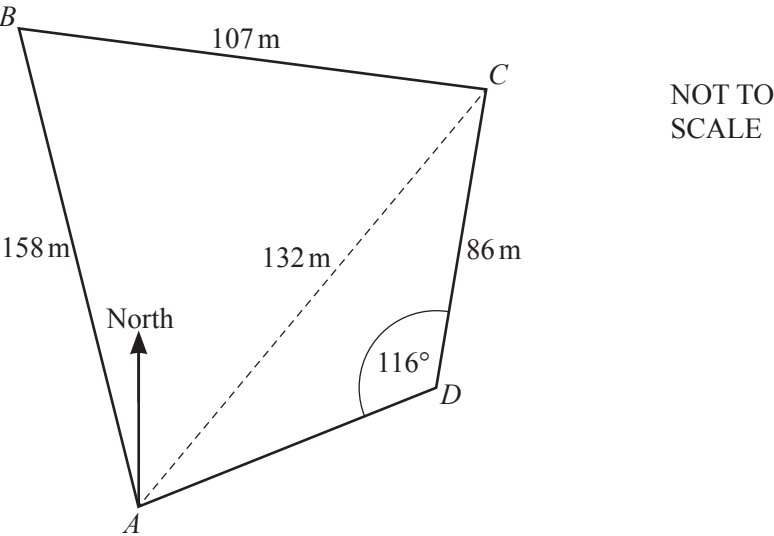
(ii) Use the quadratic formula to solve $4x^2 + 11x - 300 = 0$.
Show all your working and give your answers correct to 2 decimal places.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$ [4]

(iii) Find the length of DE .

$DE = \dots\dots\dots \text{ m}$ [1]

4



The diagram shows a field, $ABCD$, on horizontal ground.

- (a) There is a vertical post at C .
From B , the angle of elevation of the top of the post is 19° .

Find the height of the post.

..... m [2]

- (b) Use the cosine rule to find angle BAC .

Angle $BAC =$ [4]

(c) Use the sine rule to find angle CAD .

Angle $CAD = \dots\dots\dots$ [3]

(d) Calculate the area of the field.

$\dots\dots\dots \text{ m}^2$ [3]

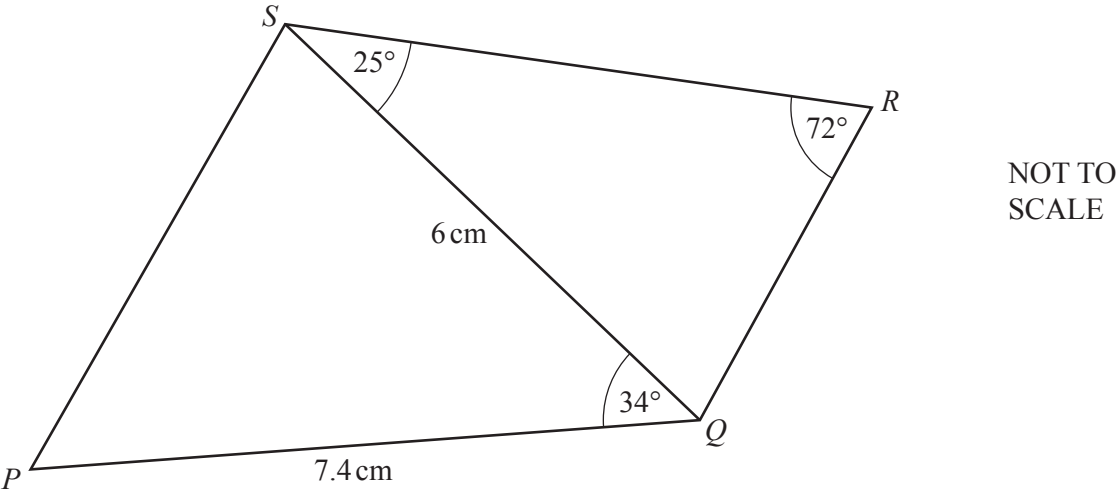
(e) The bearing of D from A is 070° .

Find the bearing of A from C .

$\dots\dots\dots$ [2]

25. Question part 1/2 | 0580 Feb-March 2020 P4 V2 Q8

8 (a)



The diagram shows a quadrilateral $PQRS$ formed from two triangles, PQS and QRS .

Calculate

(i) QR ,

$QR = \dots\dots\dots \text{ cm } [3]$

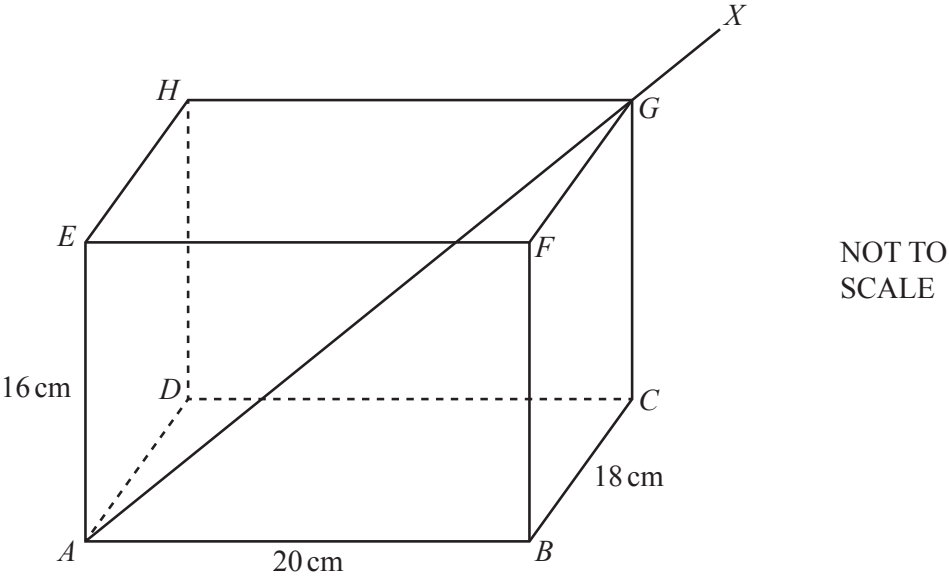
(ii) PS ,

$PS = \dots\dots\dots \text{ cm } [3]$

(iii) the area of quadrilateral $PQRS$.

$\dots\dots\dots \text{ cm}^2 [4]$

(b)



The diagram shows an open box $ABCDEFGH$ in the shape of a cuboid.
 $AB = 20\text{ cm}$, $BC = 18\text{ cm}$ and $AE = 16\text{ cm}$.
A thin rod AGX rests partly in the box as shown.
The rod is 40 cm long.

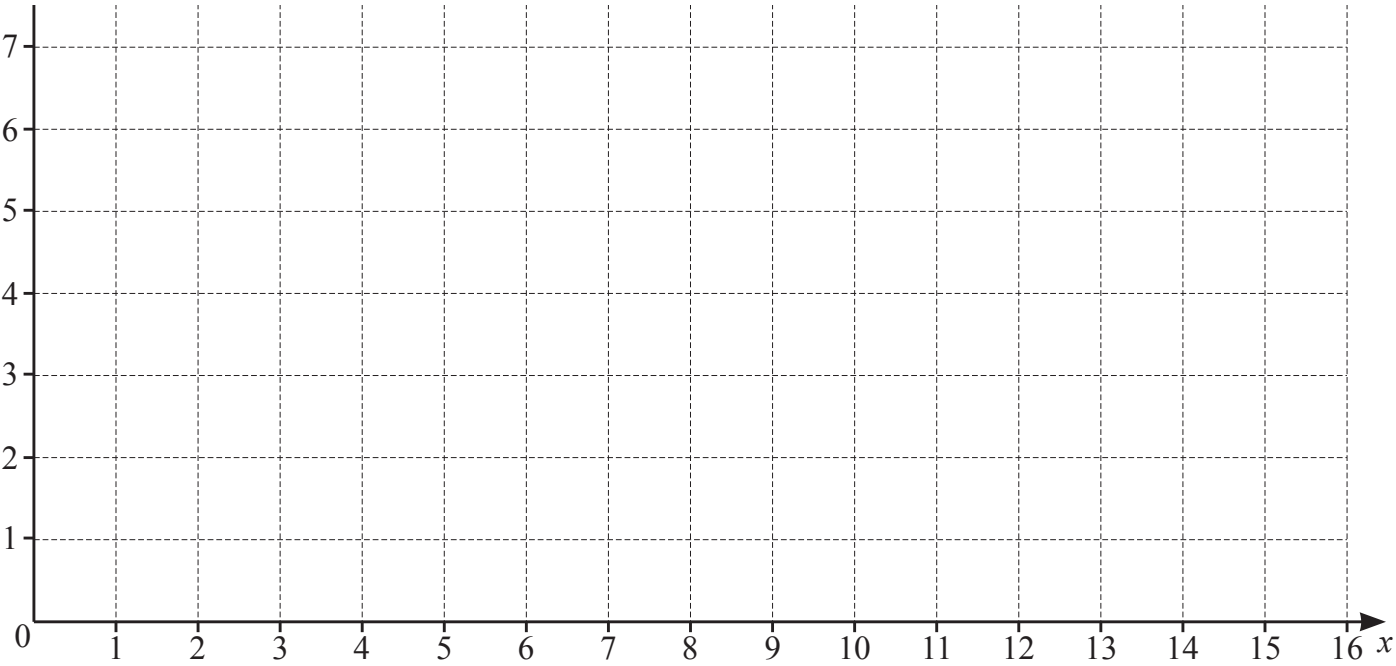
(i) Calculate GX , the length of the rod which is outside the box.

$GX = \dots\dots\dots\text{ cm}$ [4]

(ii) Calculate the angle the rod makes with the base of the box.

$\dots\dots\dots$ [3]

26. Question part 1/3 | 0580 May-June 2020 P4 V1 Q7



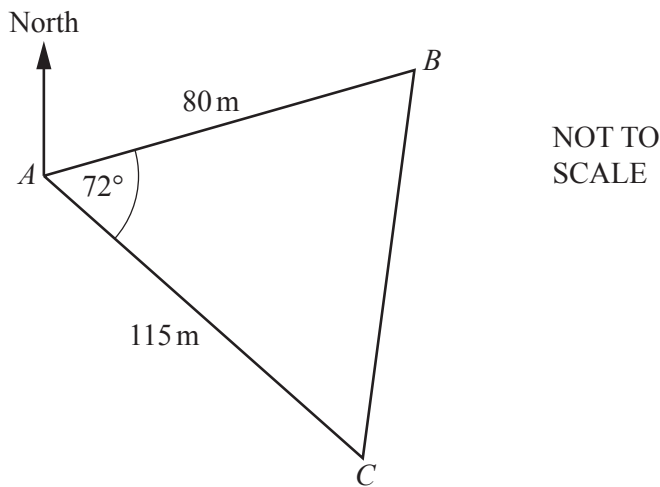
[5]

(d) He makes \$40 profit on each basket he sells and \$28 profit on each mat he sells.

Calculate the maximum profit he can make each week.

\$ [2]

7



The diagram shows the positions of three points *A*, *B* and *C* in a field.

(a) Show that *BC* is 118.1 m, correct to 1 decimal place.

[3]

(b) Calculate angle *ABC*.

Angle *ABC* = ... [3]

26. Question part 3/3 | 0580 May-June 2020 P4 V1 Q7

(c) The bearing of C from A is 147° .

Find the bearing of

(i) A from B ,

..... [3]

(ii) B from C .

..... [2]

(d) Mitchell takes 35 seconds to run from A to C .

Calculate his average running speed in kilometres per hour.

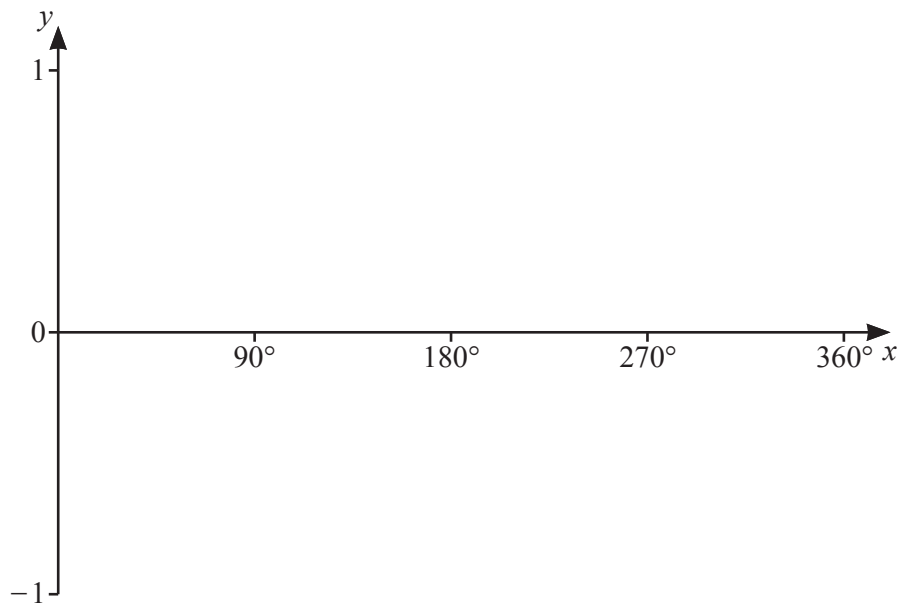
..... km/h [3]

(e) Calculate the shortest distance from point B to AC .

..... m [3]

27. Question part 1/2 | 0580 May-June 2020 P4 V1 Q8

8 (a) (i) On the axes, sketch the graph of $y = \sin x$ for $0^\circ \leq x \leq 360^\circ$.



[2]

(ii) Describe fully the symmetry of the graph of $y = \sin x$ for $0^\circ \leq x \leq 360^\circ$.

.....
.....

[2]

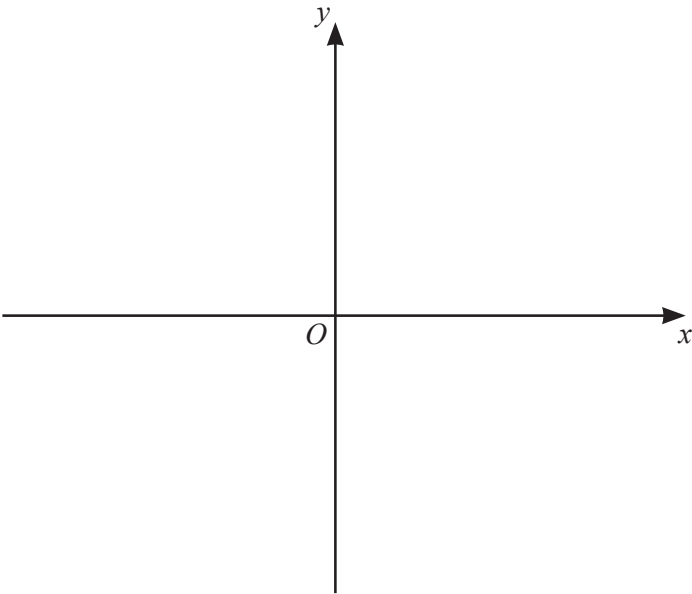
(b) Solve $4 \sin x - 1 = 2$ for $0^\circ \leq x \leq 360^\circ$.

$x = \dots\dots\dots$ and $x = \dots\dots\dots$ [3]

(c) (i) Write $x^2 + 10x + 14$ in the form $(x + a)^2 + b$.

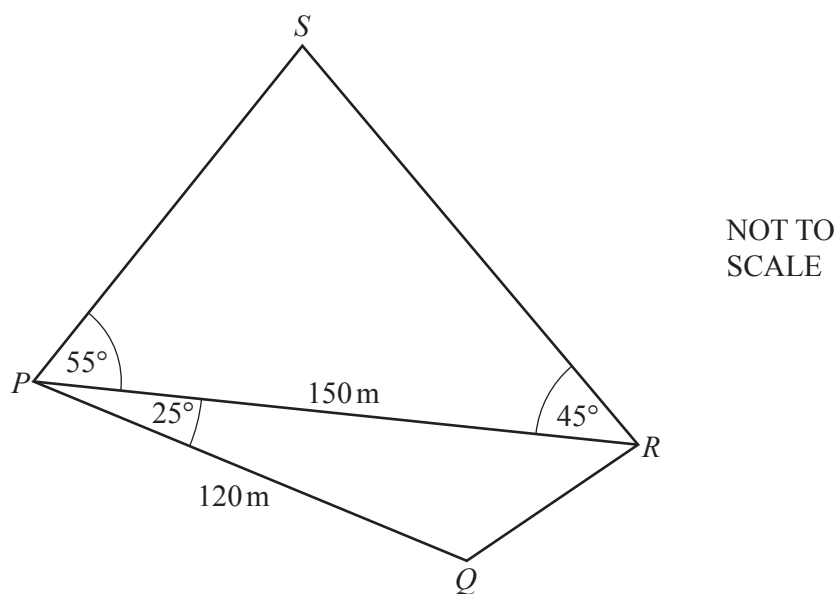
..... [2]

(ii) On the axes, sketch the graph of $y = x^2 + 10x + 14$, indicating the coordinates of the turning point.



[3]

4



The diagram shows two triangles.

(a) Calculate QR .

$QR = \dots\dots\dots \text{ m}$ [3]

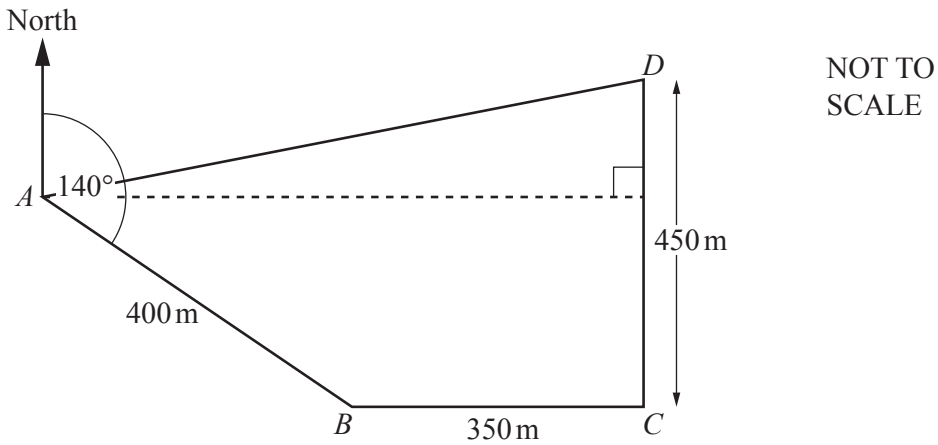
(b) Calculate RS .

$RS = \dots\dots\dots \text{ m}$ [4]

(c) Calculate the total area of the two triangles.

..... m² [3]

5



The diagram shows a field $ABCD$.
The bearing of B from A is 140° .
 C is due east of B and D is due north of C .
 $AB = 400\text{ m}$, $BC = 350\text{ m}$ and $CD = 450\text{ m}$.

(a) Find the bearing of D from B .

..... [2]

(b) Calculate the distance from D to A .

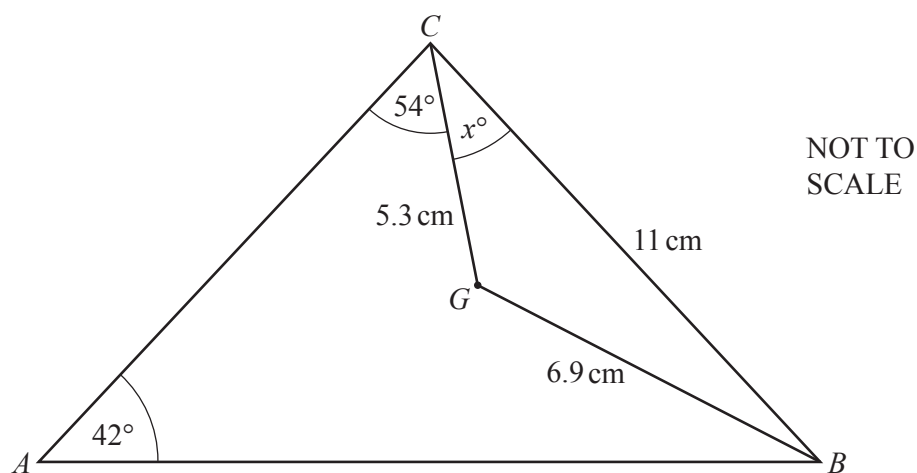
..... m [6]

(c) Jono runs around the field from A to B , B to C , C to D and D to A .
He runs at a speed of 3 m/s.

Calculate the total time Jono takes to run around the field.
Give your answer in minutes and seconds, correct to the nearest second.

..... min s [4]

30. Question part 1/2 | 0580 May-June 2020 P4 V3 Q6

6 (a)

The diagram shows triangle ABC with point G inside.

$CB = 11\text{ cm}$, $CG = 5.3\text{ cm}$ and $BG = 6.9\text{ cm}$.

Angle $CAB = 42^\circ$ and angle $ACG = 54^\circ$.

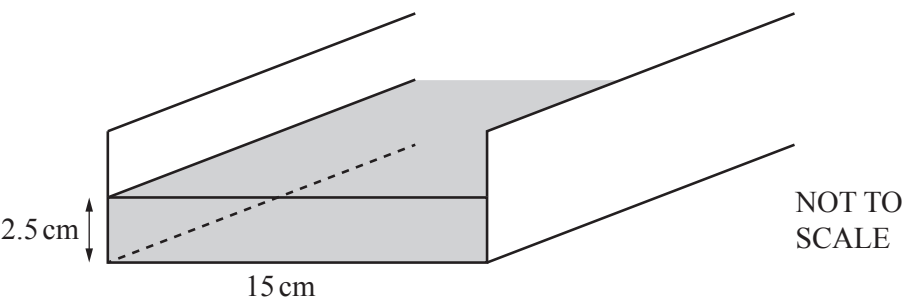
(i) Calculate the value of x .

$x = \dots\dots\dots$ [4]

(ii) Calculate AC .

$AC = \dots\dots\dots\text{ cm}$ [4]

(b)



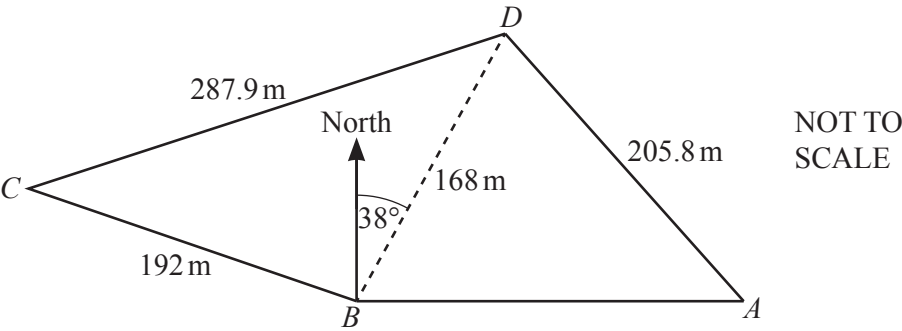
Water flows at a speed of 20 cm/s along a rectangular channel into a lake.
The width of the channel is 15 cm.
The depth of the water is 2.5 cm.

Calculate the amount of water that flows from the channel into the lake in 1 hour.
Give your answer in litres.

..... litres [4]

31. Question part 1/2 | 0580 Oct-Nov 2020 P4 V1 Q6

6



The diagram shows a field, $ABCD$, on horizontal ground.
 $BC = 192\text{ m}$, $CD = 287.9\text{ m}$, $BD = 168\text{ m}$ and $AD = 205.8\text{ m}$.

(a) (i) Calculate angle CBD and show that it rounds to 106.0° , correct to 1 decimal place.

[4]

(ii) The bearing of D from B is 038° .
Find the bearing of C from B .

..... [1]

(iii) A is **due east** of B .

Calculate the bearing of D from A .

..... [5]

(b) (i) Calculate the area of triangle BCD .

..... m^2 [2]

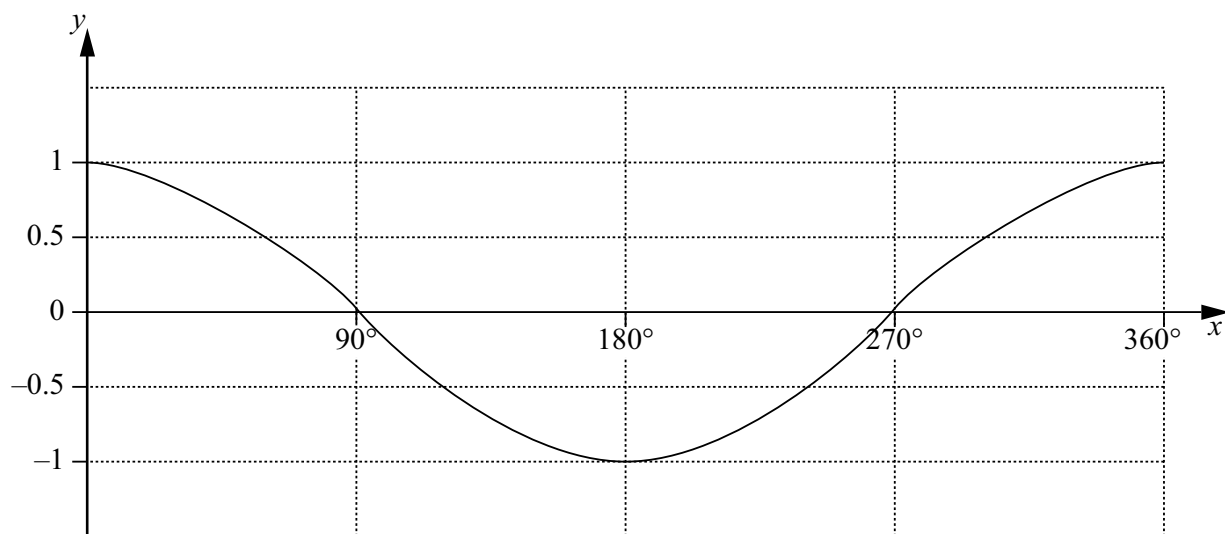
(ii) Tomas buys the triangular part of the field, BCD .
The cost is \$35 750 per hectare.

Calculate the amount he pays.
Give your answer correct to the nearest \$100.
[1 hectare = 10 000 m^2]

\$ [2]

32. Question | 0580 Specimen 2020 P4 Q8

- 8** The grid shows the graph of $y = \cos x$ for $0^\circ \leq x \leq 360^\circ$.



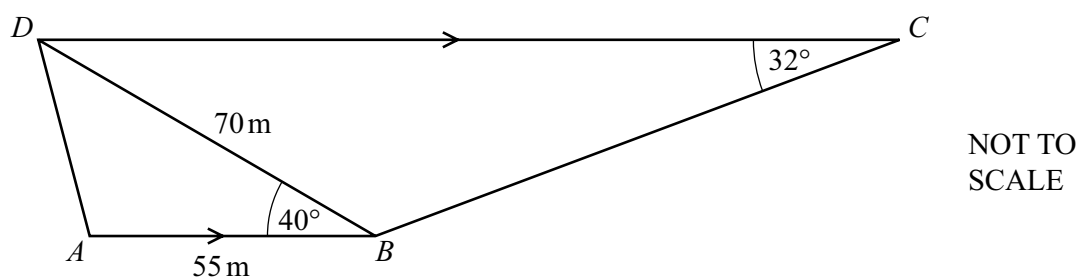
- (a)** Solve the equation $3\cos x = 1$ for $0^\circ \leq x \leq 360^\circ$.
Give your answers correct to 1 decimal place.

..... and [4]

- (b)** On the same grid, sketch the graph of $y = \sin x$ for $0^\circ \leq x \leq 360^\circ$.

[2]

9



The diagram shows a trapezium $ABCD$.

AB is parallel to DC .

$AB = 55$ m, $BD = 70$ m, angle $ABD = 40^\circ$ and angle $BCD = 32^\circ$.

(a) Calculate AD .

$AD = \dots\dots\dots$ m [4]

(b) Calculate BC .

$BC = \dots\dots\dots$ m [4]

33. Question part 2/2 | 0580 Specimen 2020 P4 Q9

(c) Calculate the area of $ABCD$.

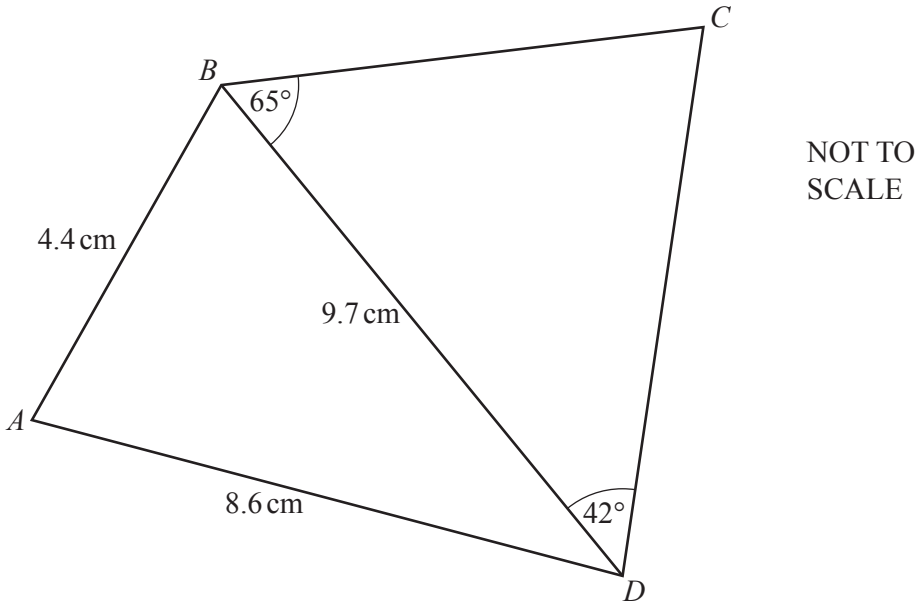
..... m^2 [3]

(d) Calculate the shortest distance from A to BD .

..... m [2]

34. Question | 0580 Feb-March 2021 P4 V2 Q5

5



(a) Calculate angle ADB .

Angle $ADB = \dots\dots\dots$ [3]

(b) Calculate DC .

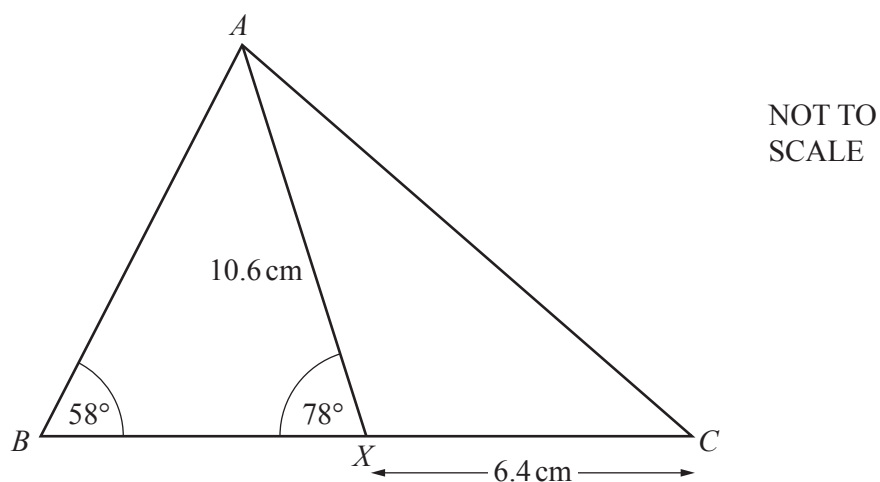
$DC = \dots\dots\dots\text{ cm}$ [4]

(c) Calculate the shortest distance from C to BD .

$\dots\dots\dots\text{ cm}$ [3]

35. Question | 0580 May-June 2021 P4 V1 Q5

5



The diagram shows triangle ABC .

X is a point on BC .

$AX = 10.6\text{ cm}$, $XC = 6.4\text{ cm}$, angle $ABC = 58^\circ$ and angle $AXB = 78^\circ$.

(a) Calculate AC .

$AC = \dots\dots\dots\text{ cm}$ [4]

(b) Calculate BX .

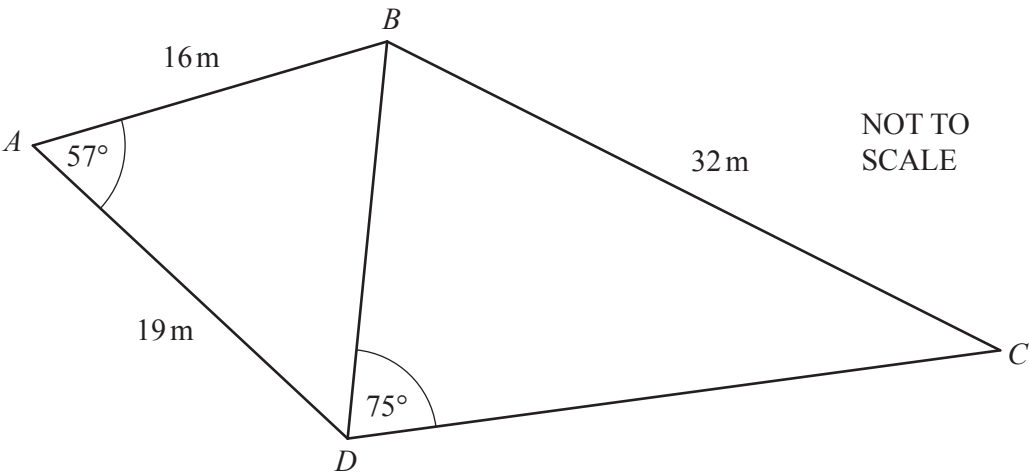
$BX = \dots\dots\dots\text{ cm}$ [4]

(c) Calculate the area of triangle ABC .

$\dots\dots\dots\text{ cm}^2$ [3]

36. Question part 1/2 | 0580 May-June 2021 P4 V2 Q6

6



The diagram shows a quadrilateral $ABCD$ made from two triangles, ABD and BCD .

(a) Show that $BD = 16.9\text{m}$, correct to 1 decimal place.

[3]

(b) Calculate angle CBD .

Angle $CBD = \dots\dots\dots$ [4]

(c) Find the area of the quadrilateral $ABCD$.

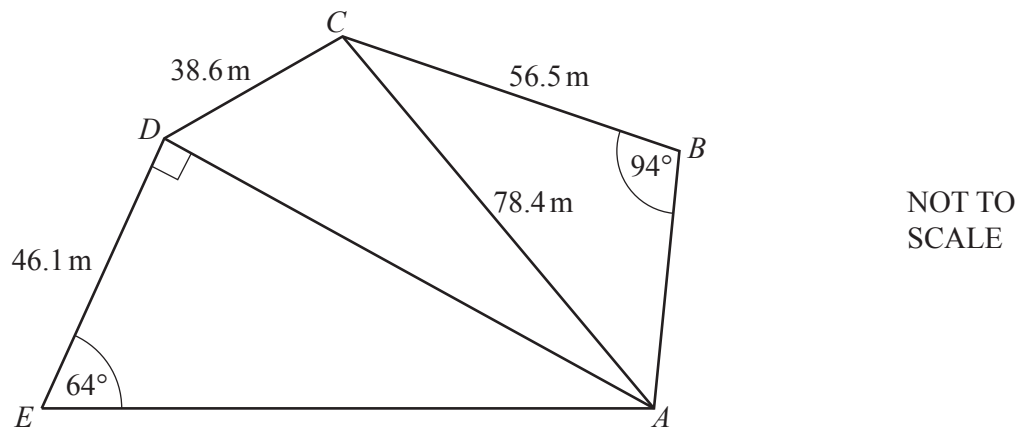
$\dots\dots\dots \text{m}^2$ [3]

(d) Find the shortest distance from B to AD .

..... m [3]

37. Question part 1/2 | 0580 Oct-Nov 2021 P4 V2 Q3

3 (a)



$ABCDE$ is a pentagon.

(i) Calculate AD and show that it rounds to 94.5 m, correct to 1 decimal place.

[2]

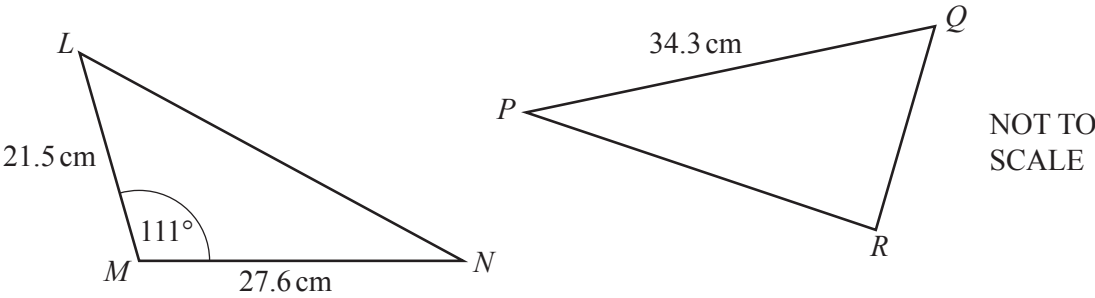
(ii) Calculate angle BAC .

Angle $BAC =$ [3]

(iii) Calculate the largest angle in triangle CAD .

..... [4]

(b)

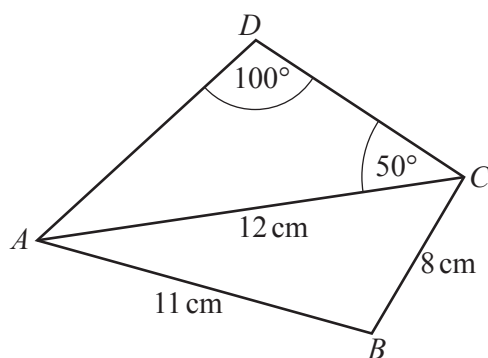


Triangle PQR has the same area as triangle LMN .

Calculate the shortest distance from R to the line PQ .

..... cm [3]

6

NOT TO
SCALE

- (a) Calculate AD .

$AD = \dots\dots\dots\text{ cm}$ [3]

- (b) Calculate angle BAC and show that it rounds to 40.42° , correct to 2 decimal places.

[4]

- (c) Calculate the area of the quadrilateral $ABCD$.

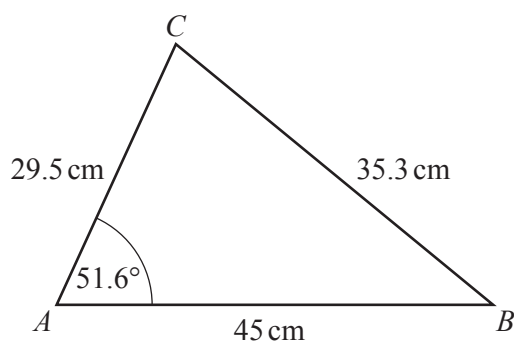
$\dots\dots\dots\text{ cm}^2$ [3]

- (d) Calculate the shortest distance from B to AC .

$\dots\dots\dots\text{ cm}$ [3]

39. Question part 1/2 | 0580 Feb-March 2022 P4 V2 Q4

4 (a)

NOT TO
SCALE

In triangle ABC , $AB = 45$ cm, $AC = 29.5$ cm, $BC = 35.3$ cm and angle $CAB = 51.6^\circ$.

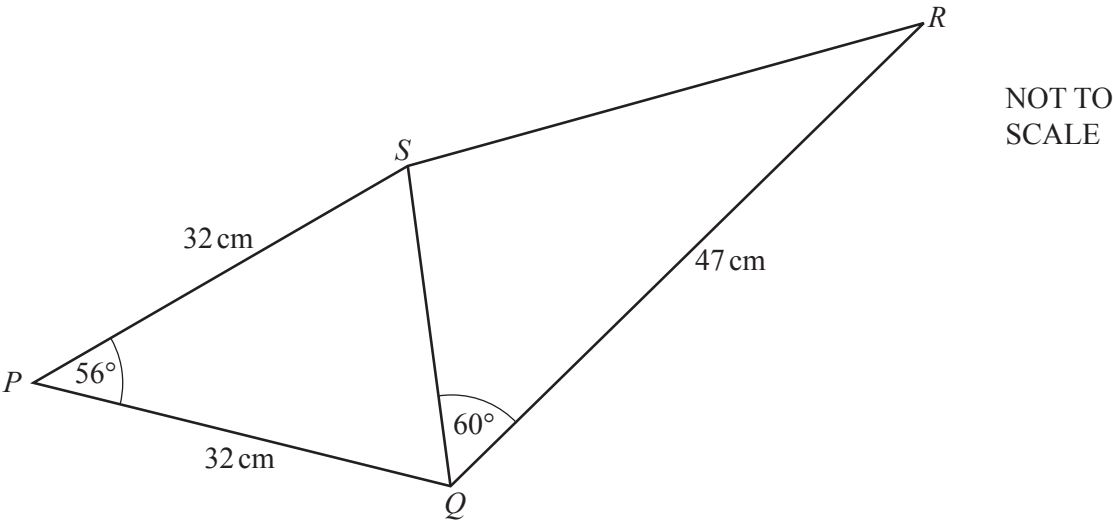
(i) Calculate angle ABC .

Angle $ABC = \dots\dots\dots$ [3]

(ii) Calculate the area of triangle ABC .

$\dots\dots\dots$ cm² [2]

(b)



The diagram shows a quadrilateral $PQRS$ formed from two triangles, PQS and QRS . Triangle PQS is isosceles, with $PQ = PS = 32$ cm and angle $SPQ = 56^\circ$. $QR = 47$ cm and angle $SQR = 60^\circ$.

(i) Calculate SR .

$SR = \dots\dots\dots$ cm [4]

(ii) Calculate the shortest distance from P to SQ .

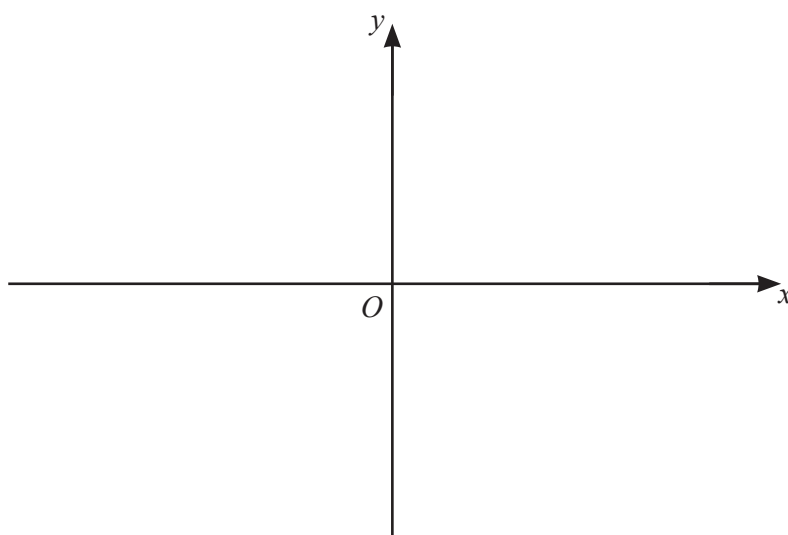
$\dots\dots\dots$ cm [3]

40. Question part 1/2 | 0580 Feb-March 2022 P4 V2 Q12

12 (a) Solve the equation $\tan x = 11.43$ for $0^\circ \leq x \leq 360^\circ$.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$ [2]

(b) Sketch the curve $y = x^3 - 4x$.



[3]

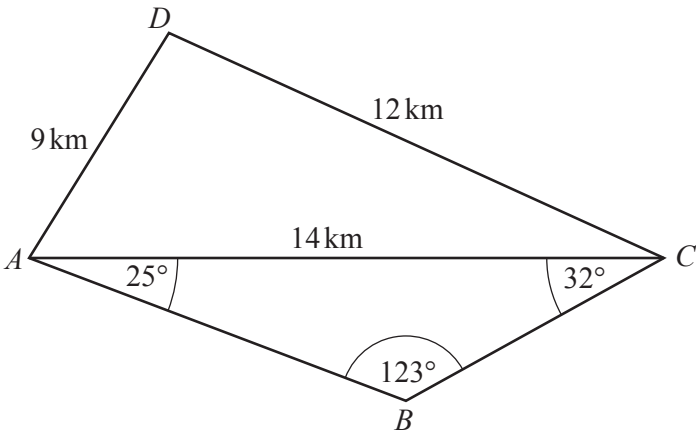
- (c) A curve has equation $y = x^3 + ax + b$.
The stationary points of the curve have coordinates $(2, k)$ and $(-2, 10 - k)$.

Work out the value of a , the value of b and the value of k .

$a = \dots\dots\dots$, $b = \dots\dots\dots$, $k = \dots\dots\dots$ [6]

41. Question part 1/2 | 0580 May-June 2022 P4 V1 Q7

7



NOT TO
SCALE

(a) Calculate angle ACD .

Angle $ACD = \dots\dots\dots$ [4]

(b) Show that $BC = 7.05\text{ km}$, correct to 2 decimal places.

[3]

41. Question part 2/2 | 0580 May-June 2022 P4 V1 Q7

(c) Calculate the shortest distance from B to AC .

..... km [3]

(d) Calculate the length of the straight line BD .

$BD =$ km [4]

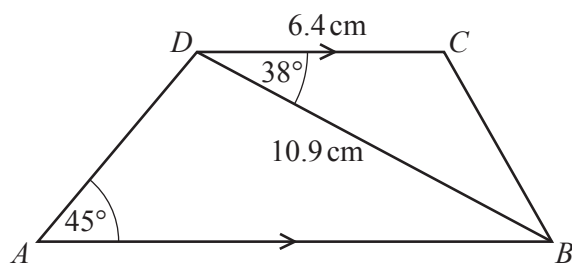
(e) C is due east of A .

Find the bearing of D from C .

..... [2]

42. Question | 0580 May-June 2022 P4 V2 Q4

4

NOT TO
SCALE

$ABCD$ is a trapezium with DC parallel to AB .
 $DC = 6.4$ cm, $DB = 10.9$ cm, angle $CDB = 38^\circ$ and angle $DAB = 45^\circ$.

(a) Find CB .

$CB = \dots\dots\dots$ cm [3]

(b) (i) Find angle ADB .

Angle $ADB = \dots\dots\dots$ [1]

(ii) Find AB .

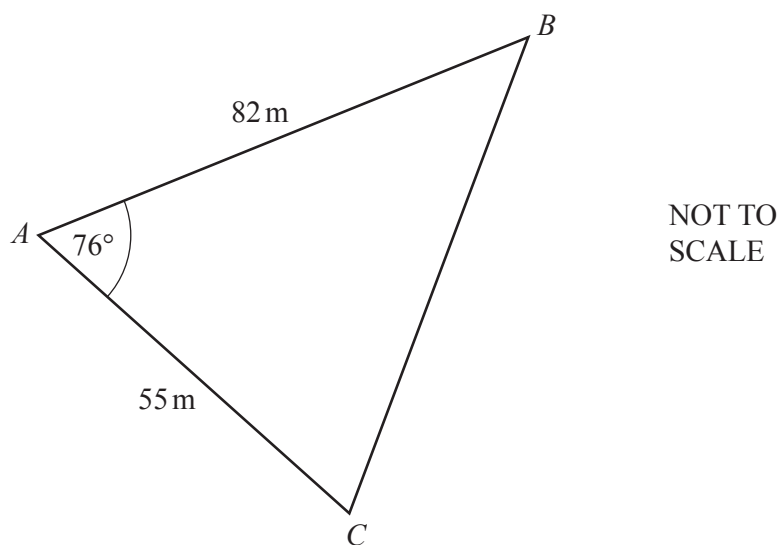
$AB = \dots\dots\dots$ cm [3]

(c) Calculate the area of the trapezium.

$\dots\dots\dots$ cm^2 [3]

43. Question part 1/2 | 0580 May-June 2022 P4 V3 Q7

7



The diagram shows a field ABC .

(a) Calculate BC .

$BC = \dots\dots\dots\text{ m}$ [3]

(b) Calculate angle ACB .

Angle $ACB = \dots\dots\dots$ [3]

43. Question part 2/2 | 0580 May-June 2022 P4 V3 Q7

- (c) A gate, G , lies on AB at the shortest distance from C .

Calculate AG .

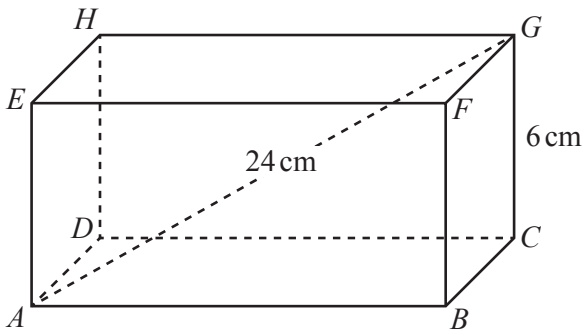
$AG = \dots\dots\dots$ m [3]

- (d) A different triangular field PQR has the same area as ABC .
 $PQ = 90$ m and $QR = 60$ m.

Work out the two possible values of angle PQR .

Angle $PQR = \dots\dots\dots$ or $\dots\dots\dots$ [5]

10



NOT TO
SCALE

The diagram shows a cuboid $ABCDEFGH$.
 $CG = 6\text{ cm}$, $AG = 24\text{ cm}$ and $AB = 2BC$.

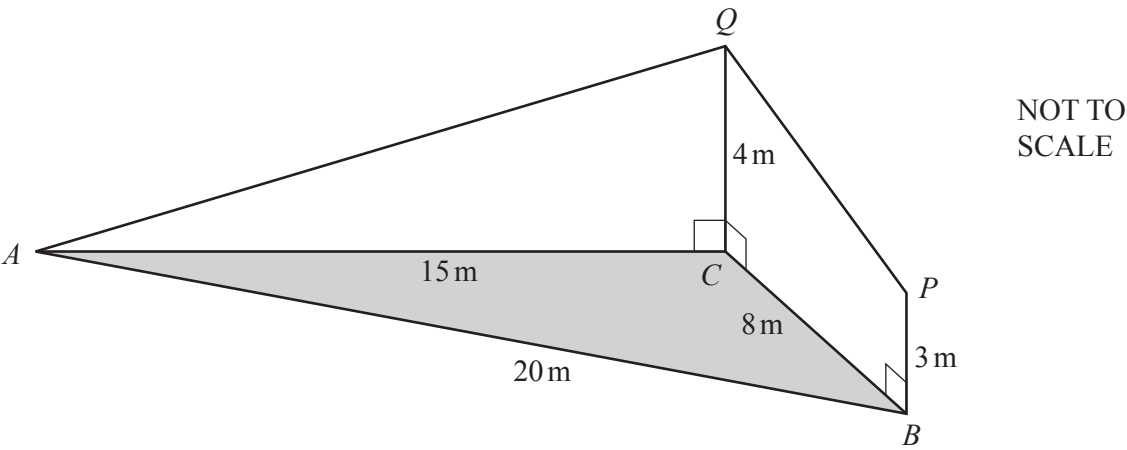
(a) Calculate AB .

$AB = \dots\dots\dots\text{ cm}$ [4]

(b) Calculate the angle between AG and the base $ABCD$.

$\dots\dots\dots$ [3]

8



The diagram shows triangle ABC on horizontal ground.
 $AC = 15\text{ m}$, $BC = 8\text{ m}$ and $AB = 20\text{ m}$.

BP and CQ are vertical poles of different heights.
 $BP = 3\text{ m}$ and $CQ = 4\text{ m}$.
 AQ and PQ are straight wires.

(a) Show that angle $ACB = 117.5^\circ$, correct to 1 decimal place.

[4]

(b) Calculate the area of triangle ABC .

..... m^2 [2]

(c) Calculate the length of AQ .

..... m [2]

(d) Calculate the angle of elevation of Q from P .

..... [3]

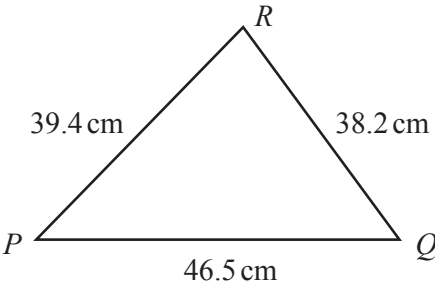
(e) Another straight wire connects A to the midpoint of PQ .

Calculate the angle between this wire and the horizontal ground.

..... [5]

46. Question part 1/2 | 0580 Oct-Nov 2022 P4 V2 Q7

7 (a)



NOT TO
SCALE

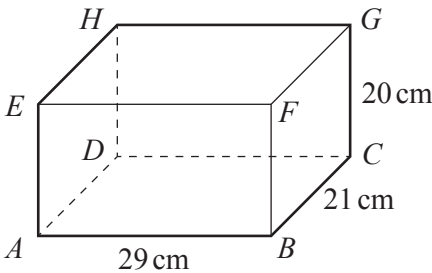
(i) Calculate angle QPR .

Angle $QPR = \dots\dots\dots$ [4]

(ii) Find the shortest distance from Q to PR .

$\dots\dots\dots$ cm [3]

(b) The diagram shows a cuboid.



NOT TO
SCALE

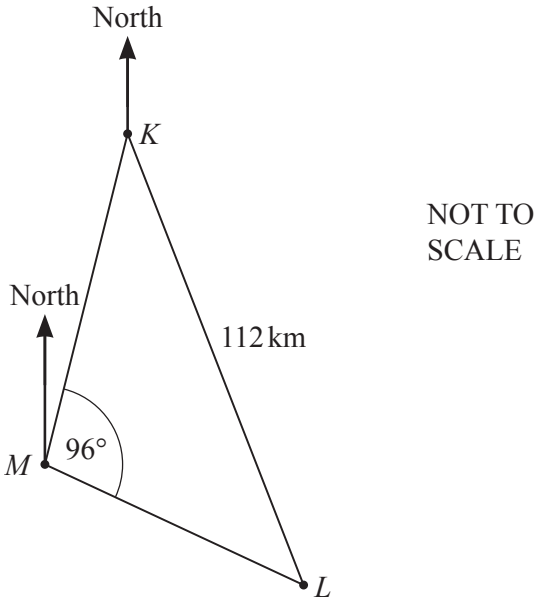
(i) Calculate the length AG .

$AG = \dots\dots\dots$ cm [3]

(ii) Calculate the angle between AG and the base $ABCD$.

..... [3]

(c)



The diagram shows the positions of a lighthouse, L , and two ships, K and M .
The bearing of L from K is 155° and $KL = 112$ km.
The bearing of K from M is 010° and angle $KML = 96^\circ$.

Find the bearing and distance of ship M from the lighthouse, L .

Bearing

Distance km [5]

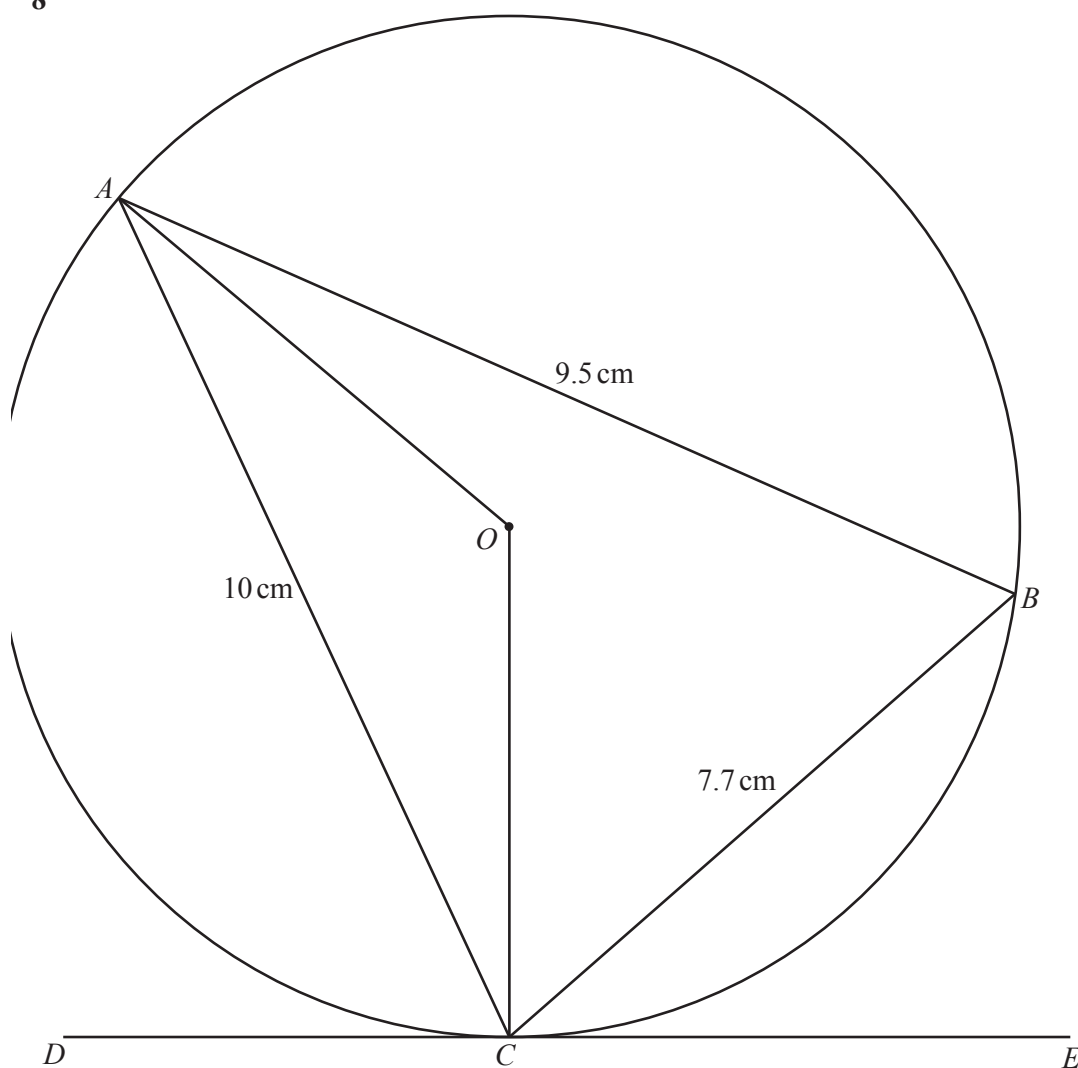
9

(a) On the diagram, sketch the graph of $y = \sin x$ for $0^\circ \leq x \leq 360^\circ$. [2]

(b) Solve the equation $5 \sin x + 4 = 0$ for $0^\circ \leq x \leq 360^\circ$.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$ [3]

8

NOT TO
SCALE

A , B and C are points on the circle, centre O .
 DE is a tangent to the circle at C .
 $AC = 10\text{ cm}$, $AB = 9.5\text{ cm}$ and $BC = 7.7\text{ cm}$.

(a) Show that angle $ABC = 70.2^\circ$, correct to 1 decimal place.

[4]

(b) Find

(i) angle AOC

Angle $AOC = \dots\dots\dots$ [1]

(ii) angle ACO

Angle $ACO = \dots\dots\dots$ [1]

(iii) angle ACD .

Angle $ACD = \dots\dots\dots$ [1]

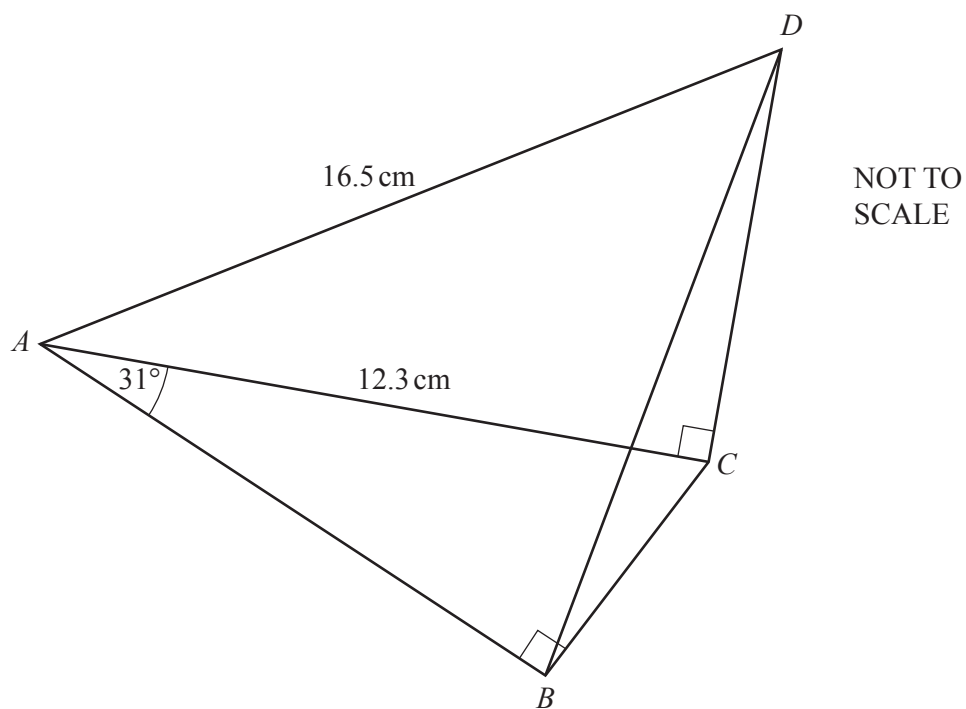
(c) Calculate the radius, OC , of the circle.

$OC = \dots\dots\dots$ cm [3]

(d) Calculate the area of triangle ABC as a percentage of the area of the circle.

$\dots\dots\dots$ % [4]

10



The diagram shows a quadrilateral $ABCD$.

$AC = 12.3$ cm and $AD = 16.5$ cm.

Angle $BAC = 31^\circ$, angle $ABC = 90^\circ$ and angle $ACD = 90^\circ$.

(a) Show that $AB = 10.54$ cm, correct to 2 decimal places.

[2]

(b) Show that angle $DAC = 41.80^\circ$ correct to 2 decimal places.

[2]

(c) Calculate BD .

$BD = \dots\dots\dots\text{cm}$ [3]

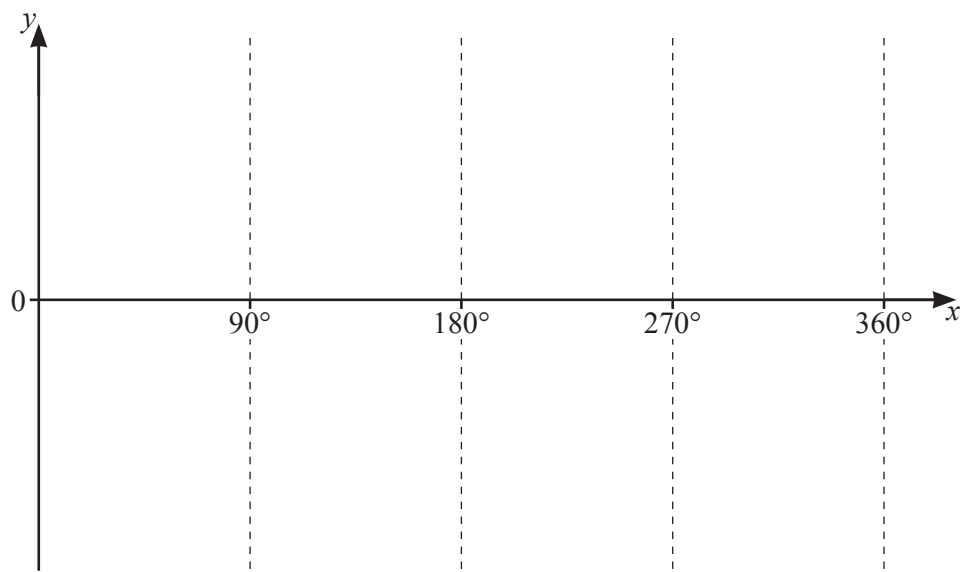
(d) Calculate angle CBD .

Angle $CBD = \dots\dots\dots$ [4]

(e) Calculate the shortest distance from C to BD .

$\dots\dots\dots\text{ cm}$ [4]

12 (a) Sketch the graph of $y = \tan x$ for $0^\circ \leq x \leq 360^\circ$.

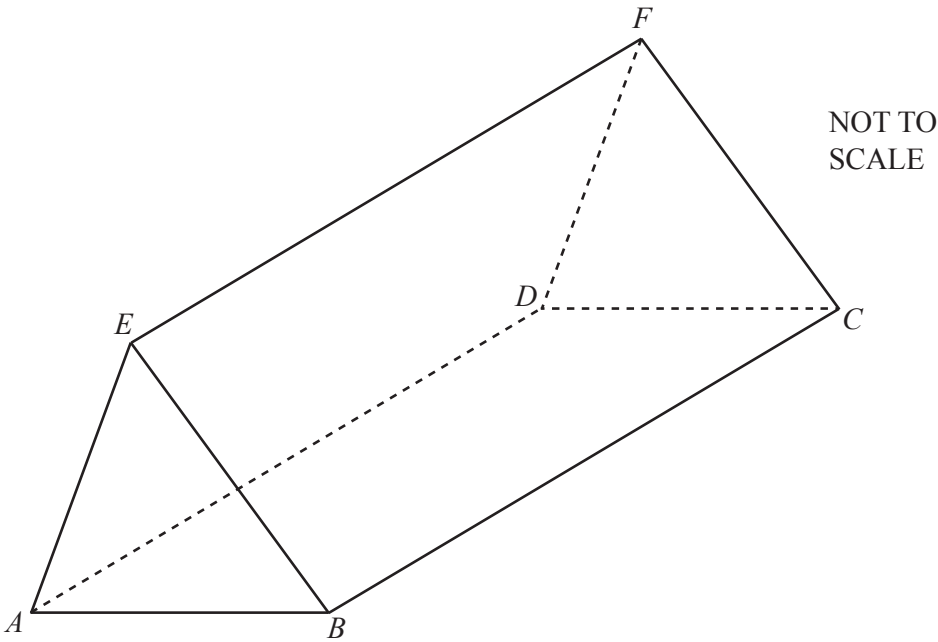


[2]

(b) Find x when $\tan x = \frac{1}{\sqrt{3}}$ and $0^\circ \leq x \leq 360^\circ$.

..... [2]

2



The diagram shows a solid triangular prism $ABCDEF$ of length 15 cm.
 $AB = 6.4$ cm, $EB = 5.7$ cm and the volume of the prism is 145 cm^3 .

(a) Show that angle $EBA = 32^\circ$, correct to the nearest degree.

[3]

(b) Find the length of EA .

..... cm [3]

(c) Calculate the shortest distance from E to AB .

..... cm [3]

(d) Calculate the angle BF makes with the base, $ABCD$, of the prism.

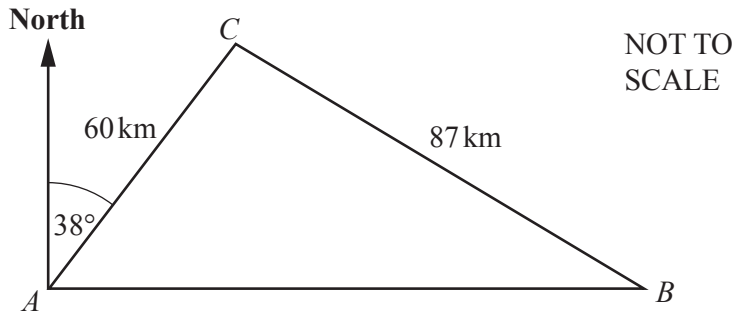
..... [4]

(e) The prism is made of plastic with density 938 kg/m^3 .

Calculate the mass of the prism in **grams**.
[Density = mass $\div$ volume]

..... g [3]

7



The diagram shows the straight roads between town A , town B and town C .
 $AC = 60$ km, $CB = 87$ km and B is due east of A .
The bearing of C from A is 038° .

(a) Show that angle $ACB = 95.1^\circ$, correct to 1 decimal place.

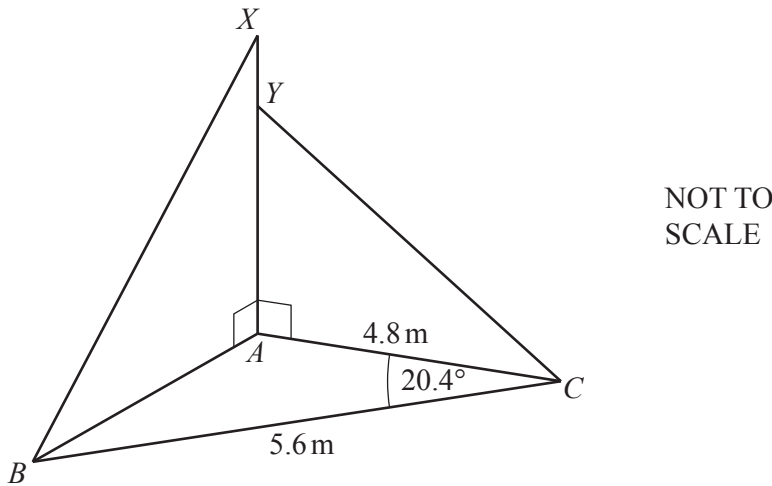
[5]

(b) Without stopping, a car travels from town A to town C then to town B , before returning directly to town A .
The total time taken for the journey is 3 hours 20 minutes.

Calculate the average speed of the car for this journey.
Give your answer in kilometres per hour.

..... km/h [6]

5 (a)



ABC is a scalene triangle on horizontal ground.
 AYX is a straight vertical post, held in place by two straight wires XB and YC .
 $AC = 4.8\text{ m}$, $BC = 5.6\text{ m}$ and angle $ACB = 20.4^\circ$.

(i) Calculate AB .

$AB = \dots\dots\dots\text{ m}$ [3]

(ii) Angle $XBA = 64^\circ$.

Calculate AX .

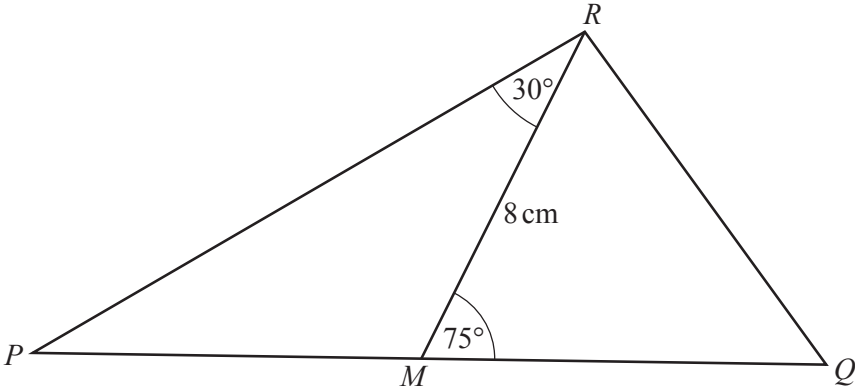
$AX = \dots\dots\dots\text{ m}$ [2]

(iii) $AY = 2.9\text{ m}$.

Calculate the area of triangle YAC .

$\dots\dots\dots\text{ m}^2$ [2]

(b)



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SCALE

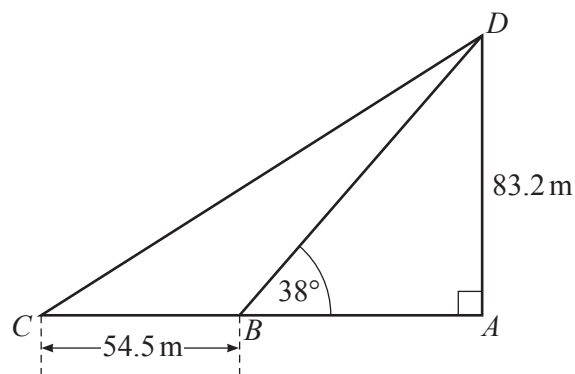
In triangle PQR , M is the midpoint of PQ .
 $RM = 8\text{ cm}$, angle $PRM = 30^\circ$ and angle $RMQ = 75^\circ$.

Calculate PQ .

$PQ = \dots\dots\dots\text{ cm [5]}$

54. Question part 1/2 | 0580 Oct-Nov 2023 P4 V1 Q5

5 (a)



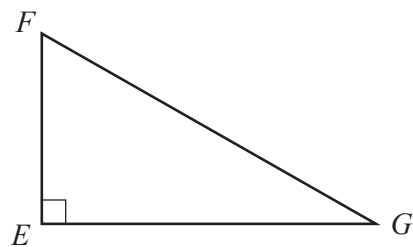
NOT TO
SCALE

ACD is a right-angled triangle.
B is on *AC* and *BC* = 54.5 m.
AD = 83.2 m and angle *ABD* = 38°.

Calculate angle *ACD*.

Angle *ACD* = ... [5]

(b)



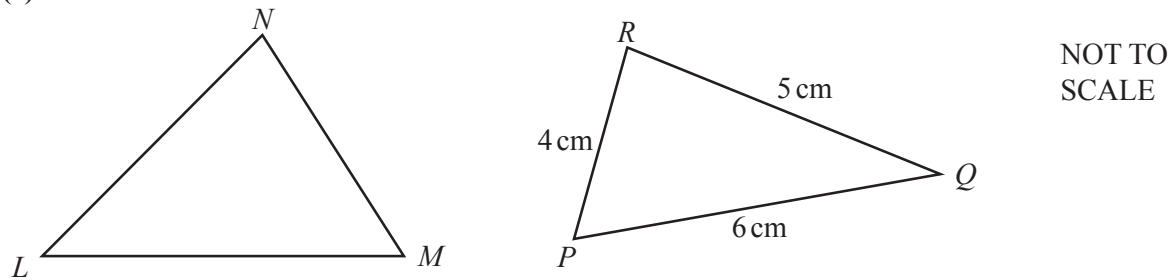
EFG is a right-angled triangle.
A circle can be drawn that passes through the three vertices of the triangle.

On the diagram, mark the position of the centre of the circle with a cross.
Explain how you decide.

.....
..... [2]

54. Question part 2/2 | 0580 Oct-Nov 2023 P4 V1 Q5

(c)

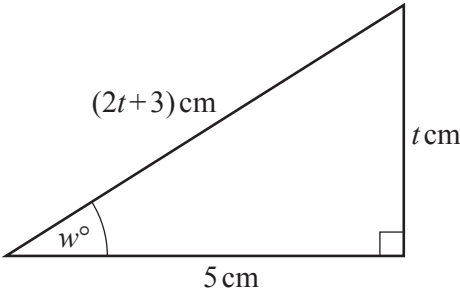


In triangle LMN , the ratio angle L : angle M : angle $N = 4 : 5 : 6$.
In triangle PQR , $PQ = 6\text{ cm}$, $PR = 4\text{ cm}$ and $QR = 5\text{ cm}$.

Calculate the difference between the largest angle in triangle PQR and the largest angle in triangle LMN .

..... [7]

6



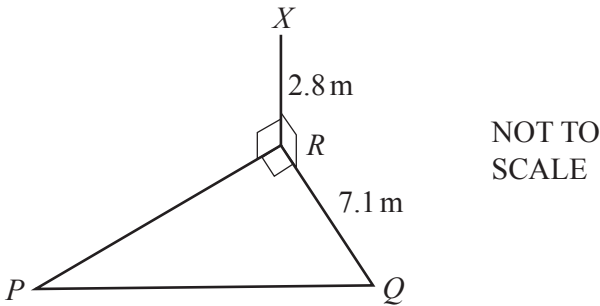
NOT TO
SCALE

The diagram shows a right-angled triangle.

Find the value of w .

$w = \dots\dots\dots [7]$

7 (a)



The diagram shows a right-angled triangle PQR on horizontal ground. X is vertically above R and the angle of elevation of X from P is 21° . $XR = 2.8\text{ m}$ and $RQ = 7.1\text{ m}$.

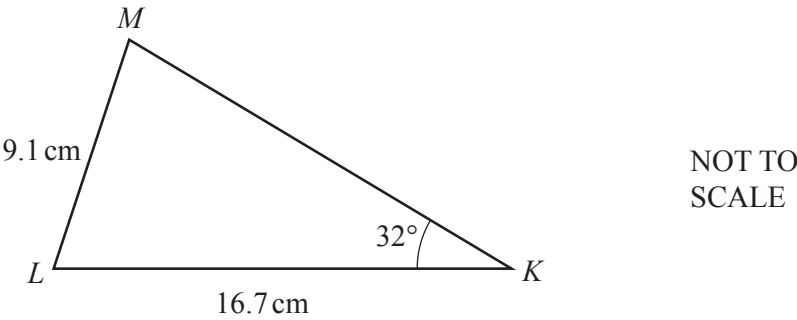
(i) Calculate the angle of elevation of X from Q .

..... [2]

(ii) Calculate PQ .

..... m [3]

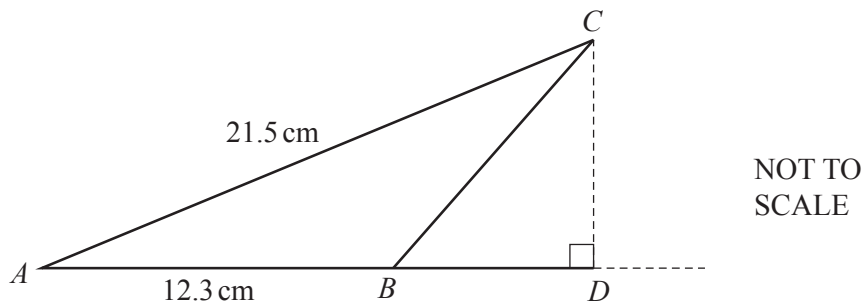
(b)



Calculate the acute angle KML .

Angle $KML =$ [3]

(c)



The area of triangle ABC is 62.89 cm^2 .

(i) Show that angle $BAC = 28.4^\circ$, correct to 1 decimal place.

[2]

(ii) Calculate BC .

..... cm [3]

(iii) AB is extended to a point D such that angle $BDC = 90^\circ$.

Calculate BD .

..... cm [3]

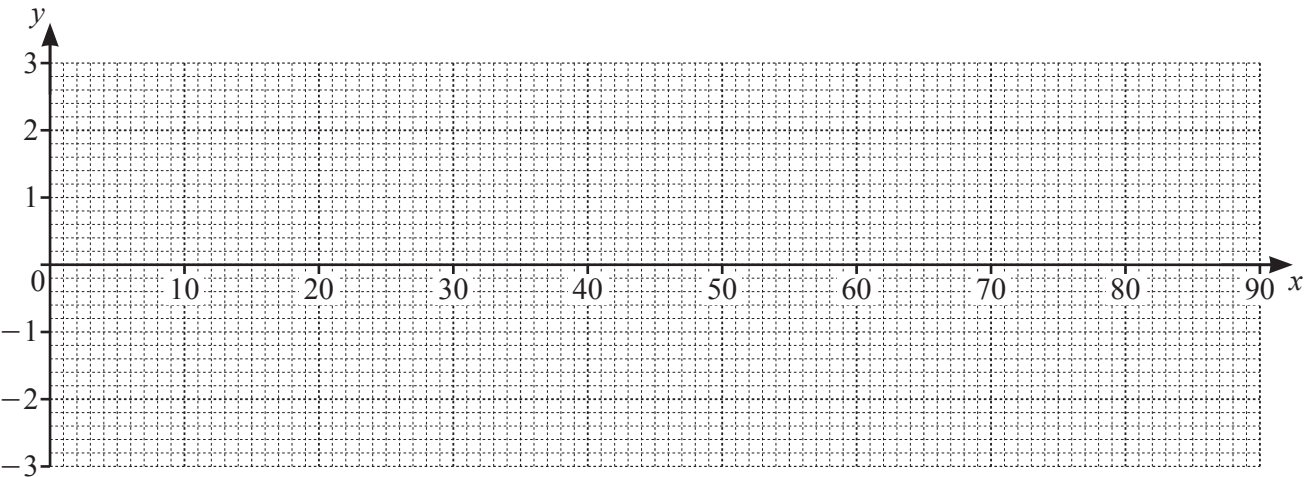
57. Question | 0580 Oct-Nov 2023 P4 V3 Q7

- 7 (a) Complete the table of values for $y = 3 \cos 2x^\circ$.
Values are given correct to 1 decimal place.

x	0	10	20	30	40	45	50	60	70	80	90
y	3.0	2.8	2.3	1.5	0.5		−0.5		−2.3		−3.0

[3]

- (b) Draw the graph of $y = 3 \cos 2x^\circ$ for $0 \leq x \leq 90$.



[4]

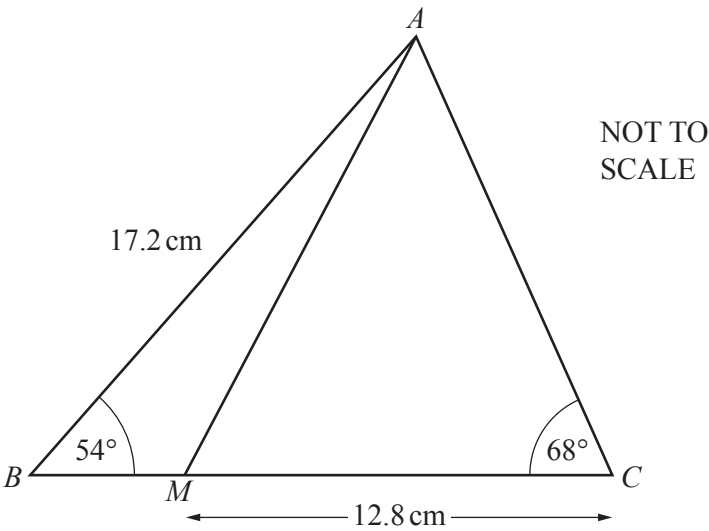
- (c) Use your graph to solve the equation $3 \cos 2x^\circ = -2$ for $0 \leq x \leq 90$.

$x =$ [1]

- (d) By drawing a suitable straight line, solve the equation $120 \cos 2x^\circ = 80 - x$ for $0 \leq x \leq 90$.

$x =$ [3]

6



The diagram shows triangle ABC with $AB = 17.2\text{ cm}$.
Angle $ABC = 54^\circ$ and angle $ACB = 68^\circ$.

(a) Calculate AC .

$AC = \dots\dots\dots\text{ cm [3]}$

(b) M lies on BC and $MC = 12.8\text{ cm}$.

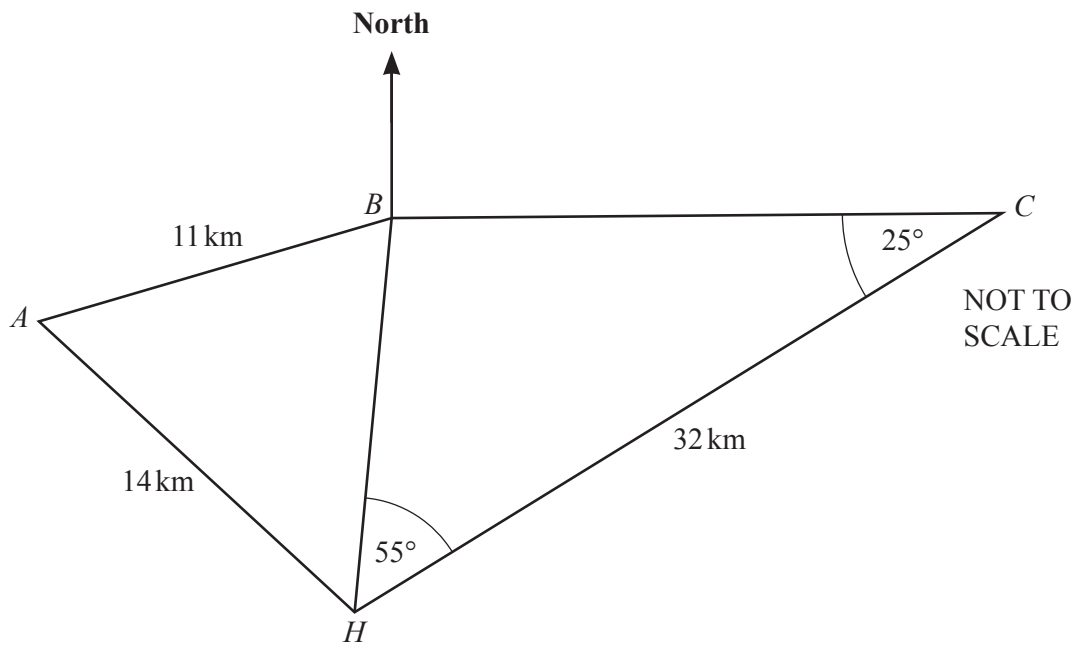
Calculate AM .

$AM = \dots\dots\dots\text{ cm [3]}$

(c) Calculate the shortest distance from A to BC .

$\dots\dots\dots\text{ cm [3]}$

6



The diagram shows the positions of two lighthouses A and B , a boat C and a harbour H .
 C is due east of B .

(a) Find the bearing of the harbour from boat C .

..... [1]

(b) (i) Show that angle $CBH = 100^\circ$.

[1]

(ii) Show that $BH = 13.7$ km, correct to 1 decimal place.

[3]

(c) Calculate the bearing of A from B .

..... [5]

(d) At 1 pm boat C sails 32 km directly to the harbour at a speed of 10 knots.

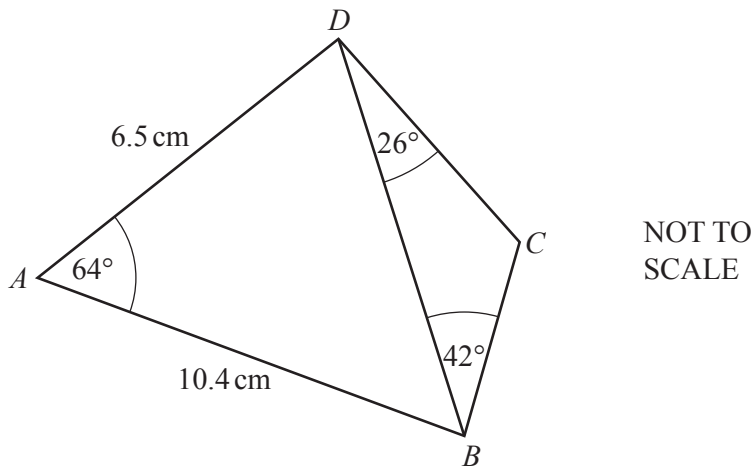
- (i) Calculate the time when boat C arrives at the harbour.
Give this time correct to the nearest minute.
[1 knot = 1.852 km/h]

..... [4]

- (ii) Calculate the distance of boat C to the harbour when boat C is at the shortest distance from lighthouse B .

..... km [3]

6



$ABCD$ is a quadrilateral with $AB = 10.4\text{ cm}$ and $AD = 6.5\text{ cm}$. Angle $DAB = 64^\circ$, angle $BDC = 26^\circ$ and angle $DBC = 42^\circ$.

(a) Show that $BD = 9.55\text{ cm}$, correct to 2 decimal places.

[3]

(b) (i) Show that angle $BCD = 112^\circ$.

[1]

(ii) Calculate CD .

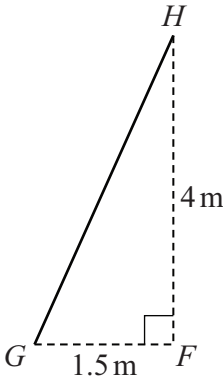
$CD = \dots\dots\dots$ [3]

(c) Find the shortest distance from D to AB .

$\dots\dots\dots\text{ cm}$ [3]

61. Question part 1/2 | 0580 May-June 2024 P4 V3 Q6

6 (a)



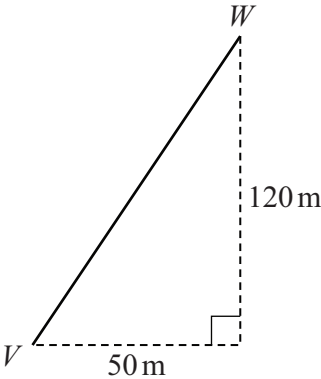
NOT TO
SCALE

The diagram shows a ladder, GH , on horizontal ground, leaning against a vertical wall, HF .
 $GF = 1.5\text{ m}$ and $HF = 4\text{ m}$.

Calculate the length of the ladder, GH .

..... m [2]

(b)



NOT TO
SCALE

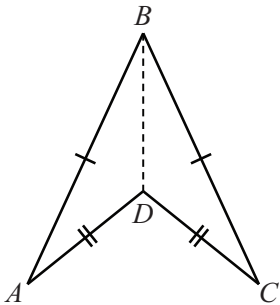
W is 120 m north of V and 50 m east of V .

Calculate the bearing of V from W .

..... [3]



(c)



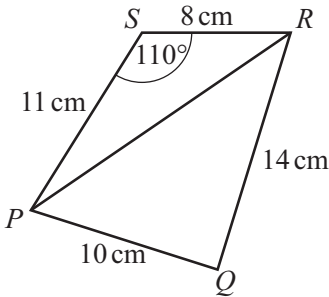
NOT TO
SCALE

In the quadrilateral $ABCD$, $AD = DC = 5\text{ cm}$ and $AB = BC$.
Angle $ABD = 25^\circ$ and angle $BAD = 15^\circ$.

Calculate the perimeter of the quadrilateral $ABCD$.

..... cm [5]

(d)

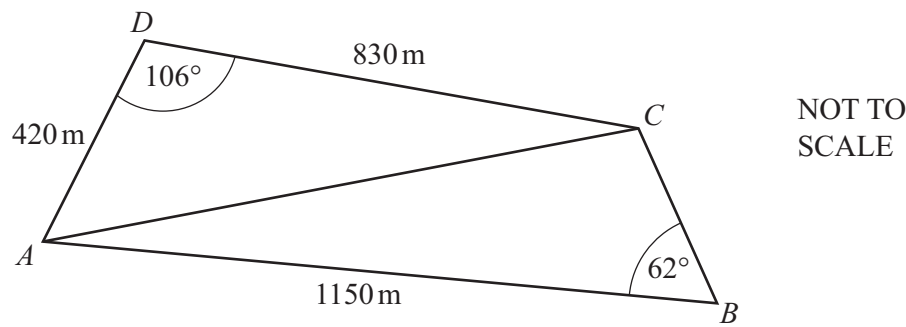


NOT TO
SCALE

$PQRS$ is a quadrilateral.

Calculate angle PQR .

- 6 The diagram shows a field $ABCD$.
A straight path AC goes across the field.



- (a) Show that $AC = 1028\text{ m}$, correct to the nearest metre.

[3]

- (b) Angle ACB is obtuse.

Calculate angle ACB .

Angle $ACB = \dots\dots\dots$ [4]

62. Question part 2/2 | 0580 Oct-Nov 2024 P4 V1 Q6

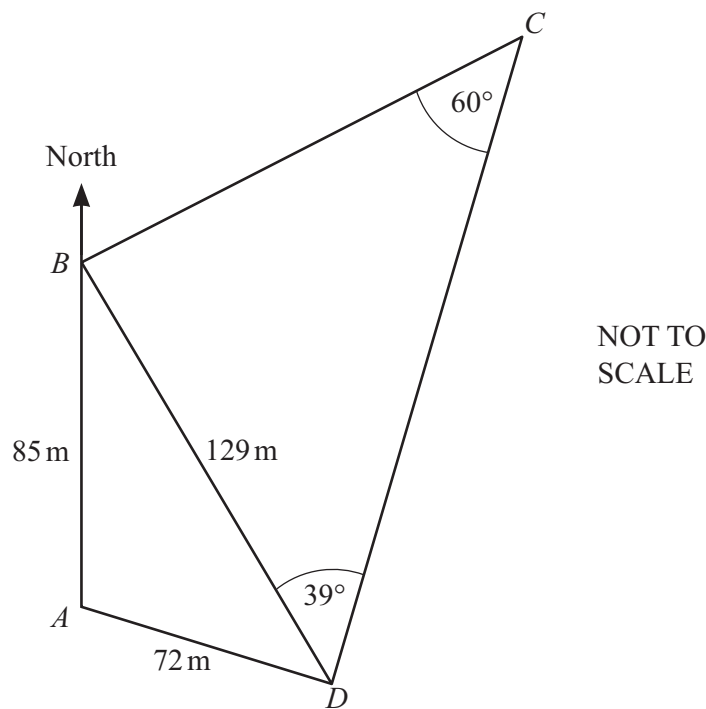


(c) Part of the field, triangle ACD , is sold for \$41 500.

Calculate the cost of 1 hectare of this part of the field.
Give your answer correct to the nearest dollar.
[1 hectare = 10 000 m²]

\$ [4]

7 (a)



The diagram shows a field, $ABCD$ with B north of A .
 BD is a path across the field.
 $AB = 85\text{ m}$, $AD = 72\text{ m}$, $BD = 129\text{ m}$, angle $BDC = 39^\circ$ and angle $BCD = 60^\circ$.

(i) Show that angle $CBD = 81^\circ$.

[1]

(ii) Calculate CD .

..... m [3]

(iii) Show that angle $ABD = 31.6^\circ$, correct to 1 decimal place.

[4]

63. Question part 2/2 | 0580 Oct-Nov 2024 P4 V2 Q7



(iv) Find the shortest distance from A to BD .

..... m [3]

(v) Find the bearing of B from C .

..... [2]

(vi) Trees are planted in the field.
The number of trees planted is 1100 per hectare.

Calculate the total number of trees planted in the field.
[1 hectare = 10 000 m²]

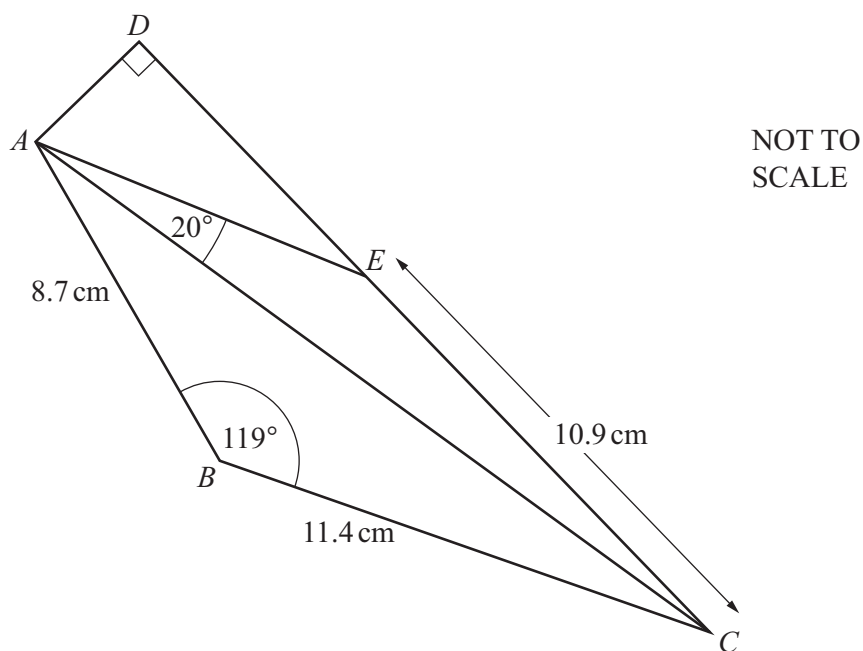
..... [4]

(b) A rectangle has an area of 9400 cm², correct to the nearest 100 cm².
The length of the rectangle is 80 cm, correct to the nearest 10 cm.

Calculate the upper bound of the width of the rectangle.

..... cm [3]

12



$ABCD$ is a quadrilateral and E is a point on CD .
 $AB = 8.7 \text{ cm}$, $BC = 11.4 \text{ cm}$ and $CE = 10.9 \text{ cm}$.
 Angle $ADE = 90^\circ$, angle $ABC = 119^\circ$ and angle $CAE = 20^\circ$.

(a) Show that $AC = 17.37 \text{ cm}$, correct to 2 decimal places.

64. Question part 2/2 | 0580 Oct-Nov 2024 P4 V3 Q12



(b) Angle AEC is obtuse.

Calculate angle ACE .

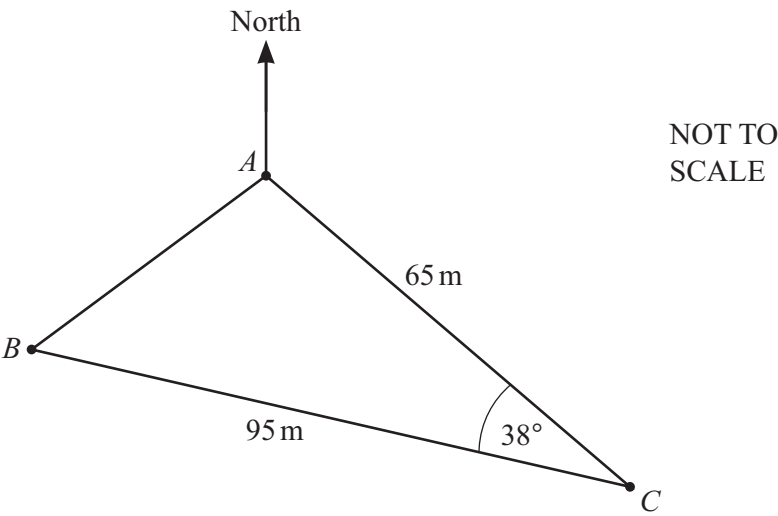
Angle $ACE = \dots\dots\dots$ [4]

(c) Calculate the perimeter of quadrilateral $ABCD$.

$\dots\dots\dots$ cm [3]

65. Question | 0580 Feb-March 2025 P4 V2 Q17

17



The diagram shows three points A , B and C on horizontal ground.
The bearing of C from A is 145° and angle $ACB = 38^\circ$.
 $AC = 65\text{ m}$ and $BC = 95\text{ m}$.

(a) Find the bearing of B from C .

..... [2]

(b) Show that $AB = 59.3\text{ m}$, correct to 1 decimal place.

[3]

(c) Angle BAC is obtuse.

Work out the bearing of B from A .

..... [4]

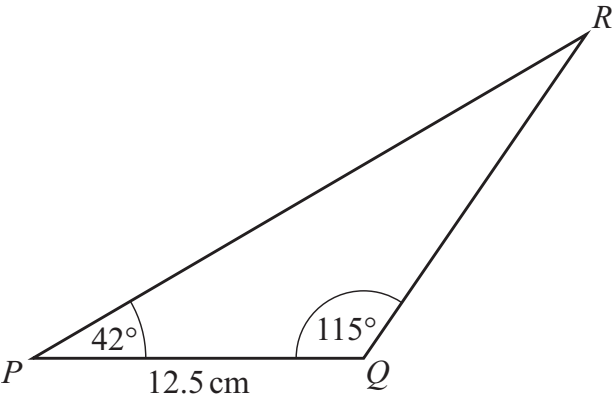
66. Question | 0580 Feb-March 2025 P4 V2 Q19

19 Solve the equation $2 + 5 \cos x = 0$ for $0^\circ \leq x \leq 360^\circ$.

$x = \dots\dots\dots$ or $x = \dots\dots\dots$ [3]

67. Question | 0580 May-June 2025 P4 V1 Q12

12

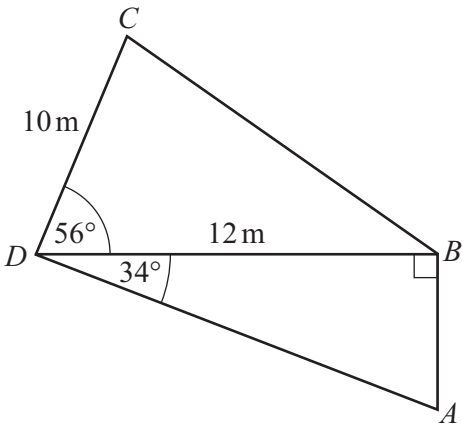


NOT TO
SCALE

The diagram shows triangle PQR .
Calculate the shortest distance from Q to PR .

..... cm [3]

20



NOT TO
SCALE

The diagram shows a quadrilateral $ABCD$.
 $CD = 10\text{ m}$ and $DB = 12\text{ m}$.
Angle $DBA = 90^\circ$, angle $CDB = 56^\circ$ and angle $ADB = 34^\circ$.

(a) Calculate the length of AB .

$AB = \dots\dots\dots\text{ m}$ [2]

(b) Calculate the area of the quadrilateral $ABCD$.

$\dots\dots\dots\text{ m}^2$ [3]

68. Question part 2/2 | 0580 May-June 2025 P4 V2 Q20



(c) Calculate the perimeter of the quadrilateral $ABCD$.

..... m [5]

(d) Calculate the shortest distance from B to the line AD .

..... m [3]

69. Question | 0580 May-June 2025 P4 V3 Q25

25 (a) Sketch the graph of $y = \sin x$ for $0^\circ \leq x \leq 360^\circ$.

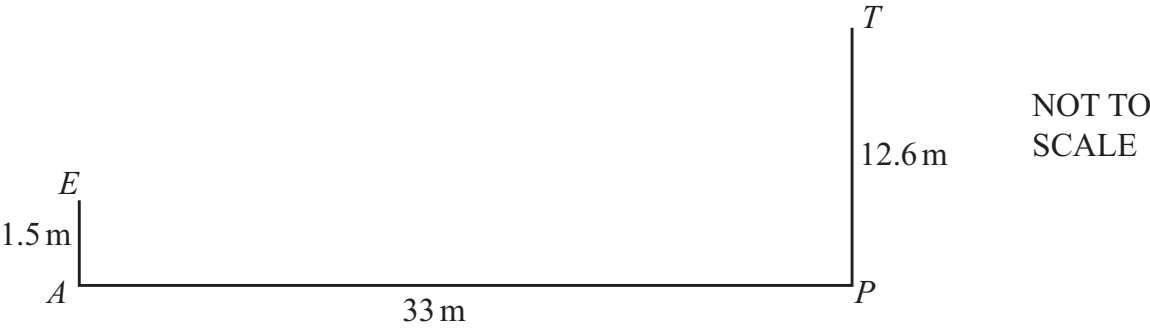


[2]

(b) Solve the equation $2 + 5 \sin x = 1$ for $0^\circ \leq x \leq 360^\circ$.

$x = \dots\dots\dots$ and $x = \dots\dots\dots$ [3]

13



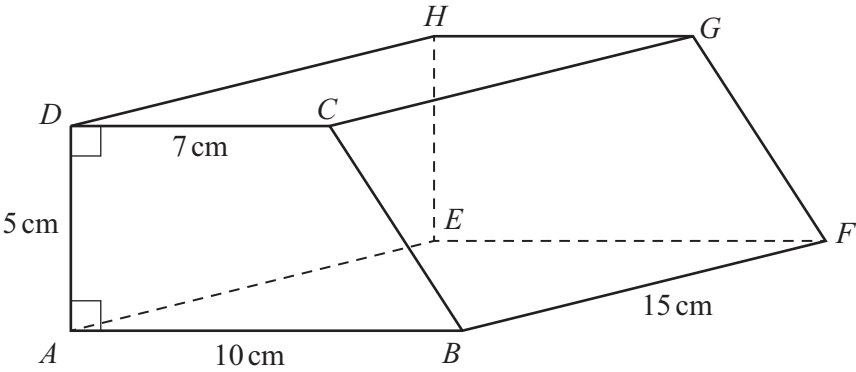
The diagram shows two vertical poles, AE and PT , standing on horizontal ground, AP .
Calculate the angle of elevation of the point T from the point E .

..... [3]

21 In triangle STU , $ST = 8\text{ cm}$, $SU = 9\text{ cm}$ and angle $TSU = 50^\circ$.
Calculate the area of triangle STU .

..... cm^2 [2]

27



NOT TO
SCALE

The diagram shows a prism of length 15 cm.
The cross-section of the prism is a trapezium.

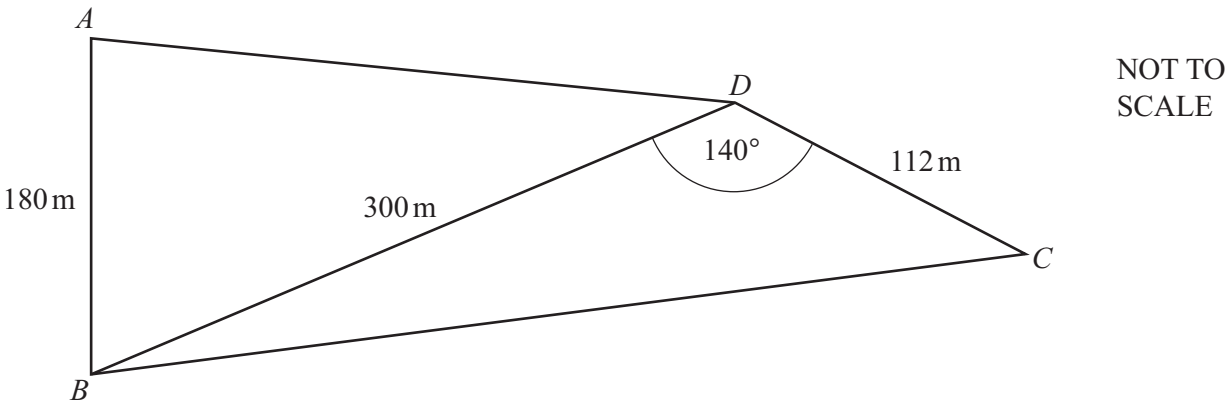
Angle $DAB = 90^\circ$ and angle $ADC = 90^\circ$.
 $AB = 10\text{ cm}$, $AD = 5\text{ cm}$ and $DC = 7\text{ cm}$.

Calculate the angle the diagonal AG makes with the base $ABFE$.

..... [4]

73. Question | 0580 Oct-Nov 2025 P4 V2 Q15

15



The diagram shows a field, $ABCD$, in the shape of a quadrilateral.
 BD is a straight path across the field.

(a) Calculate BC .

$BC = \dots\dots\dots\text{ m}$ [3]

(b) Calculate angle DBC .

Angle $DBC = \dots\dots\dots$ [3]

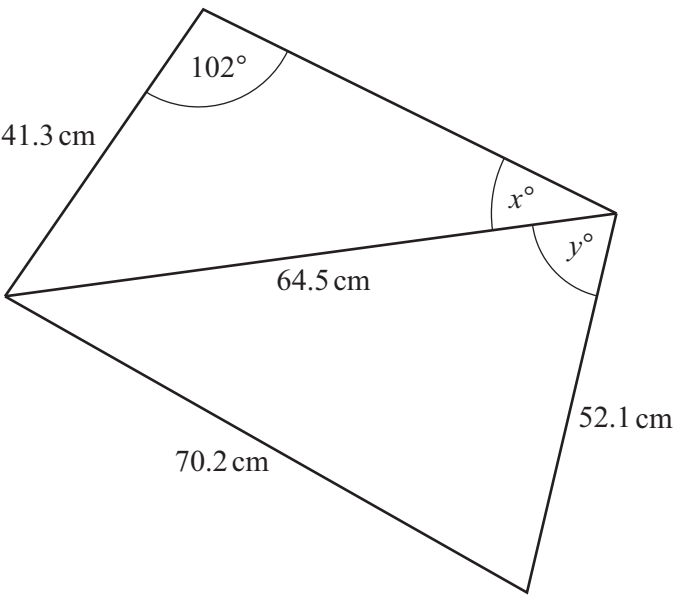
(c) The total area of the field, $ABCD$, is $35\,900\text{ m}^2$.

Work out the length of the shortest distance from D to AB .

$\dots\dots\dots\text{ m}$ [4]

74. Question | 0580 Oct-Nov 2025 P4 V3 Q18

18



NOT TO
SCALE

(a) Calculate the value of x .

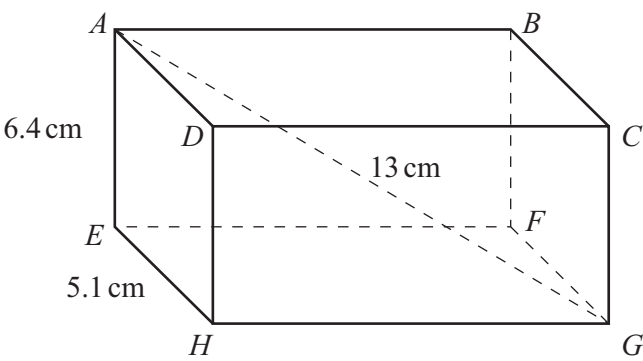
$x =$ [3]

(b) Calculate the value of y .

$y =$ [3]

75. Question | 0580 Oct-Nov 2025 P4 V3 Q24

24



NOT TO
SCALE

The diagram shows a cuboid $ABCDEFGH$.
 $AE = 6.4\text{ cm}$, $EH = 5.1\text{ cm}$ and $AG = 13\text{ cm}$.

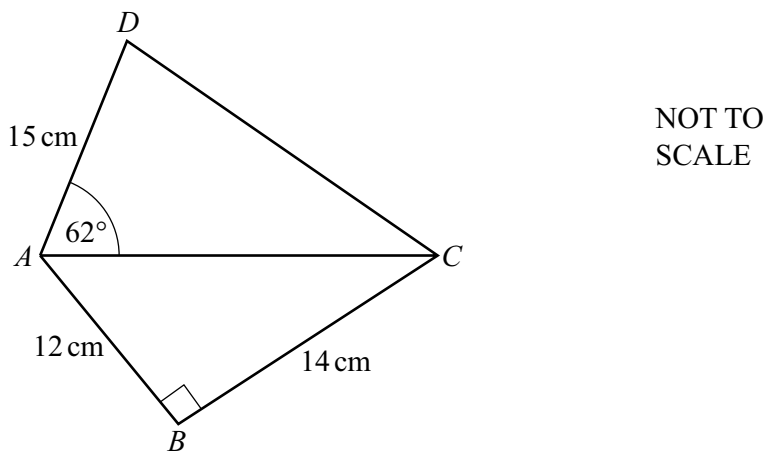
(a) Calculate EF .

$EF = \dots\dots\dots\text{ cm}$ [3]

(b) Calculate the angle between the line AG and the base $EFGH$ of the cuboid.

$\dots\dots\dots$ [3]

13



The diagram shows a quadrilateral, $ABCD$, formed from two triangles, ABC and ACD . ABC is a right-angled triangle.

(a) Calculate angle BAC .

Angle $BAC = \dots\dots\dots$ [2]

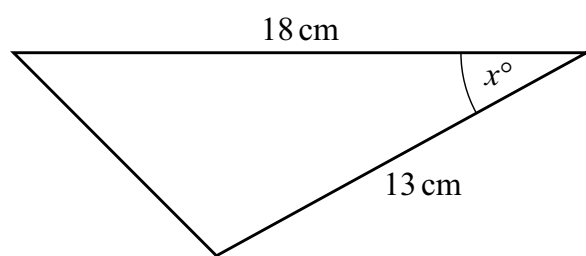
(b) Calculate BD .

$BD = \dots\dots\dots\text{ cm}$ [4]

(c) Calculate the shortest distance from D to AC .

$\dots\dots\dots\text{ cm}$ [3]

17

NOT TO
SCALE

The area of the triangle is 50 cm^2 .

Calculate the value of $\sin x$.

$\sin x = \dots\dots\dots$ [2]