EXPERT TUITION

Maths Questions By Topic:

Geometry & Measures

Edexcel GCSE (Foundation)

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Old Spec A (Linear)

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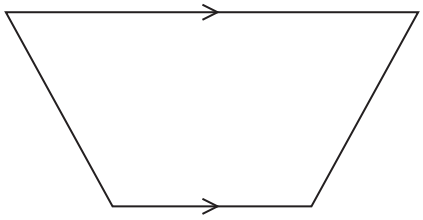
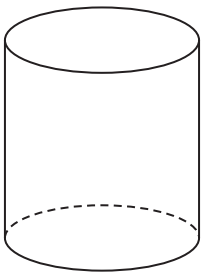
1 (a) Write down the mathematical name of this quadrilateral.



.....

(1)

(b) Write down the mathematical name of this 3-D shape.



.....

(1)

(Total for Question 1 is 2 marks)

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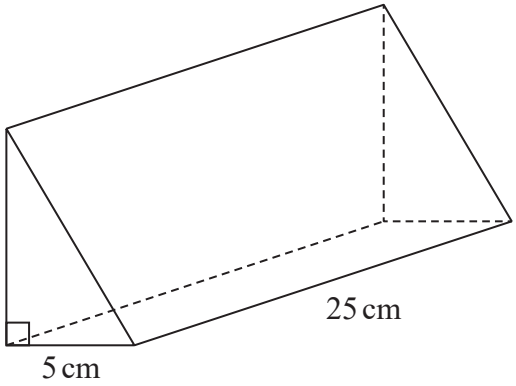
2 The diagram shows a prism.



The cross section of the prism is a right-angled triangle.
The base of the triangle has length 5 cm

The prism has length 25 cm
The prism has volume 750 cm^3

Work out the height of the prism.

..... cm

(Total for Question 2 is 3 marks)

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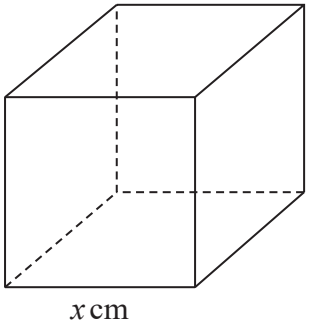
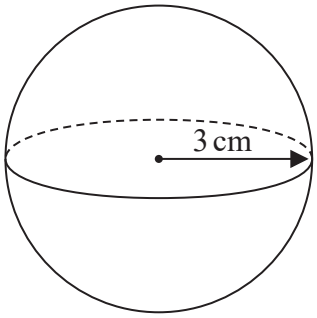
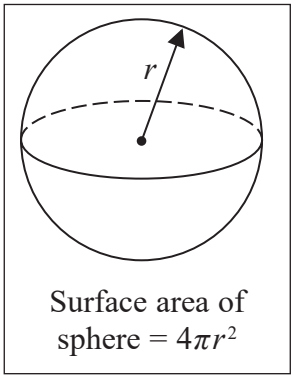
3 The diagram shows a cube with edges of length x cm and a sphere of radius 3 cm.







The surface area of the cube is equal to the surface area of the sphere.

Show that $x = \sqrt{k\pi}$ where k is an integer.

(Total for Question 3 is 4 marks)

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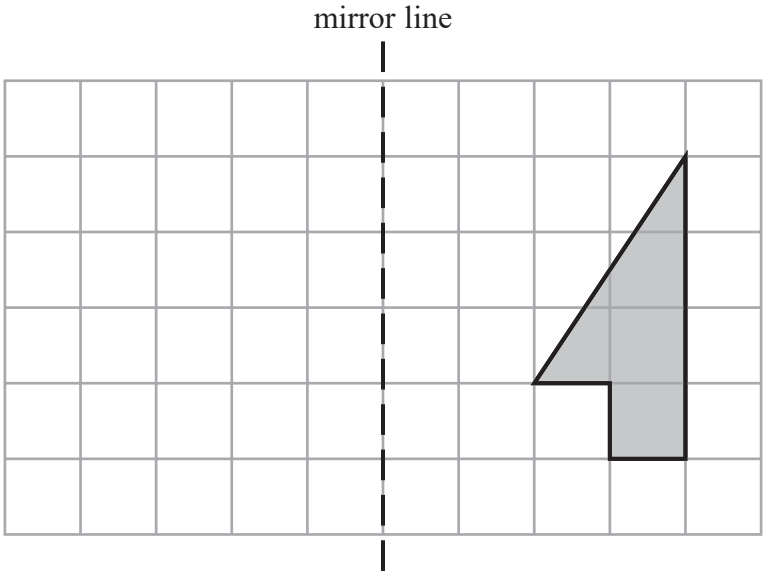
4



Reflect the shaded shape in the mirror line.

(Total for Question 4 is 2 marks)

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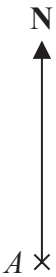
5 The diagram shows two points, A and B, on a map.

Diagram accurately drawn



Scale: 1 to 25 000

(a) Find the bearing of B from A.

..... °

(1)

(b) Work out the real distance between A and B.
Give your answer in kilometres.

..... kilometres

(3)

(Total for Question 5 is 4 marks)

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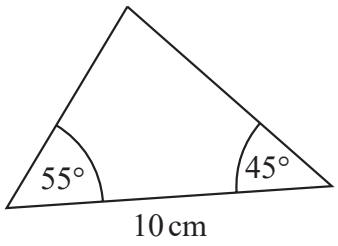
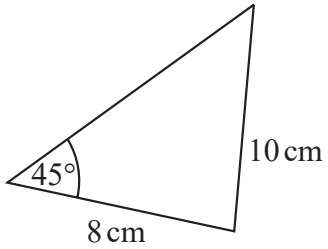
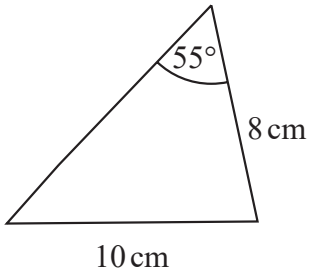
6 The diagram shows four triangles.



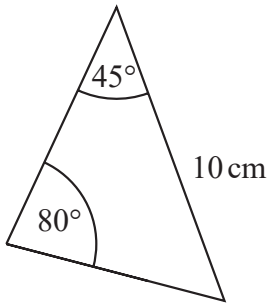
Triangle **A**



Triangle **B**



Triangle **C**



Triangle **D**

Two of these triangles are congruent.

Write down the letters of these two triangles.

..... and .....

(Total for Question 6 is 1 mark)

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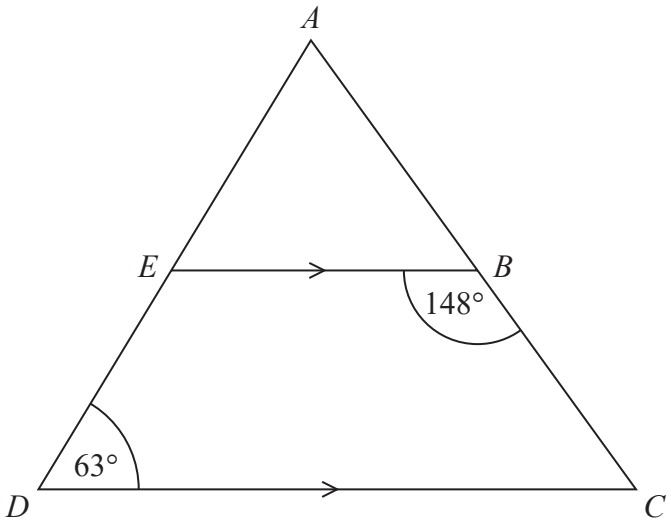
7 *ADC* is a triangle.



AED and *ABC* are straight lines.
EB is parallel to *DC*.

Angle *EBC* = 148°
Angle *ADC* = 63°

Work out the size of angle *EAB*.
You must give a reason for each stage of your working.

(Total for Question 7 is 5 marks)

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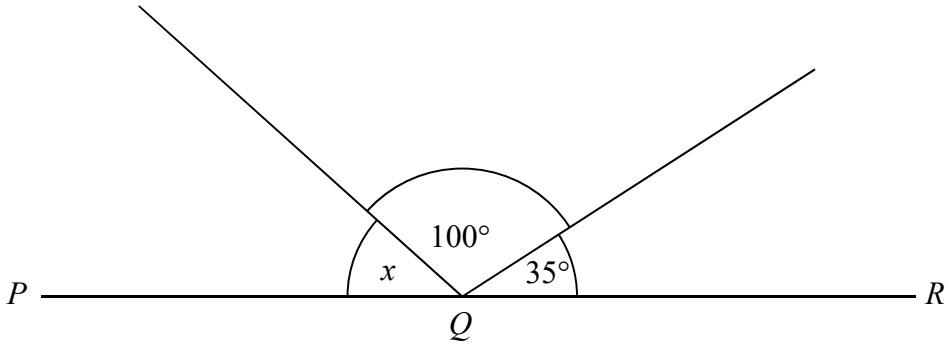
8 *PQR* is a straight line.



Work out the size of angle x.

..... °

(Total for Question 8 is 2 marks)

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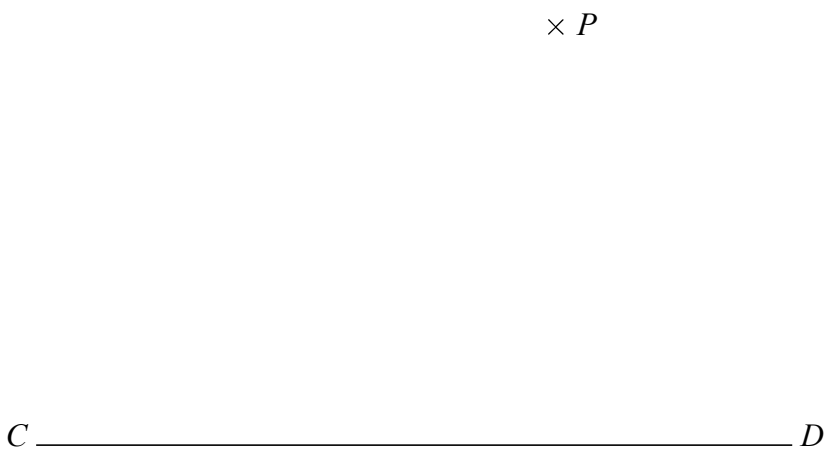
9 Use a ruler and compasses to construct the line from the point P perpendicular to the line CD.
You must show **all** construction lines.



(Total for Question 9 is 2 marks)

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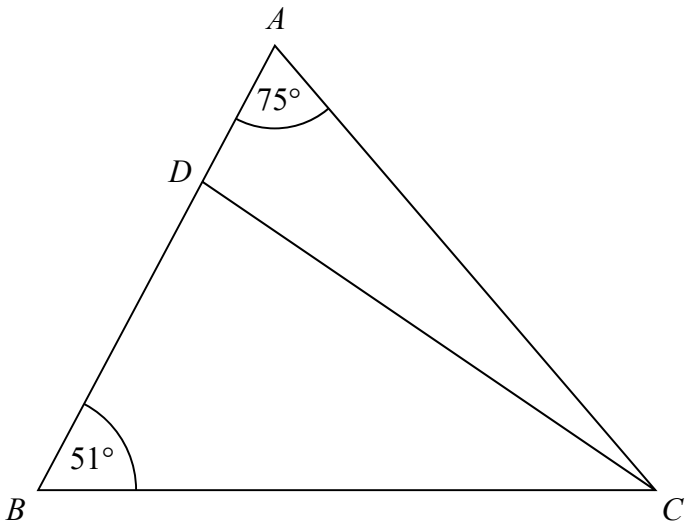
10 The diagram shows triangle *ABC*.



ADB is a straight line.

the size of angle *DCB* : the size of angle *ACD* = 2 : 1

Work out the size of angle *BDC*.

.....°

(Total for Question 10 is 4 marks)

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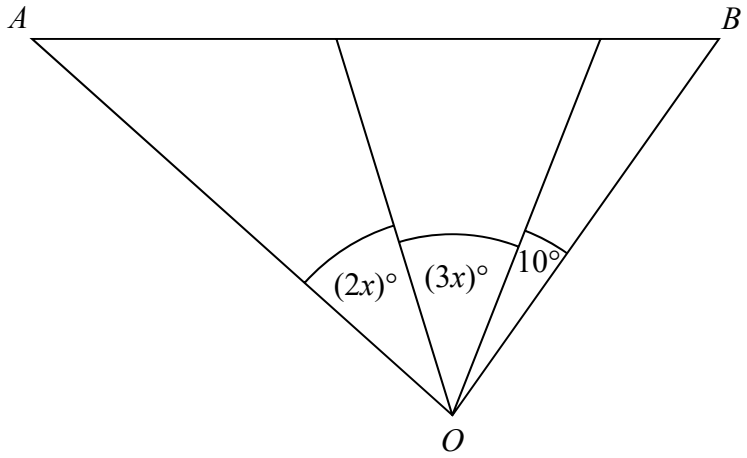
11 The diagram shows triangle AOB.



Angle AOB is **not** an obtuse angle.

Find the greatest value of x.
You must show all your working.

.....

(Total for Question 11 is 3 marks)

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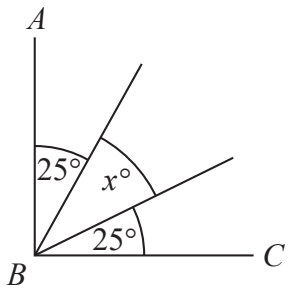
12 AB and BC are perpendicular lines.

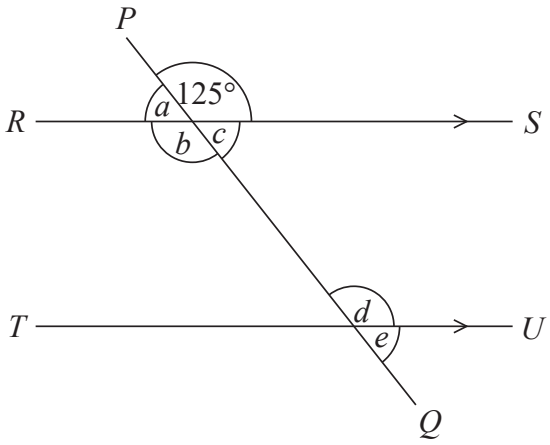


(a) Find the value of x.

$x =$ .....

(2)

RS and TU are parallel lines.
PQ is a straight line.



An angle of size 125° is shown on the diagram.

(b) (i) Write down the letter of one other angle of size 125°
Give a reason for your answer.

.....

.....

(2)

(ii) Explain why $a + b + c = 235°$

.....

.....

.....

(1)

(Total for Question 12 is 5 marks)

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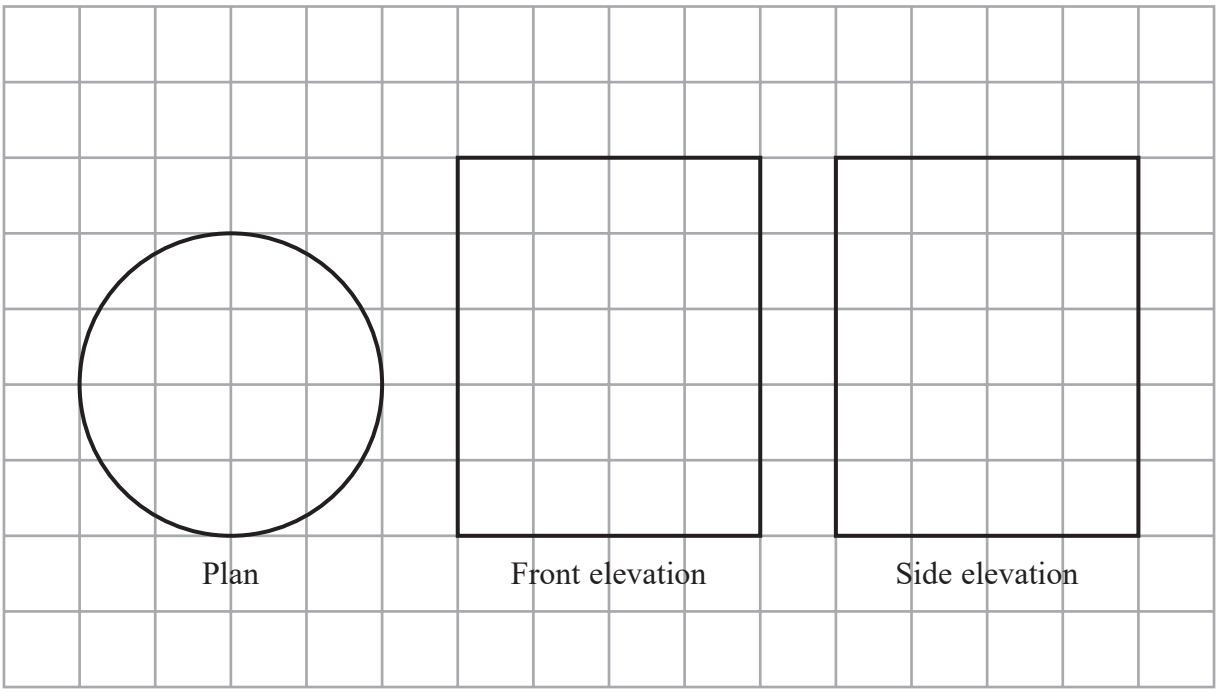
13 The diagram shows the plan, front elevation and side elevation of a solid shape, drawn on a centimetre grid.



In the space below, draw a sketch of the solid shape.
Give the dimensions of the solid on your sketch.

(Total for Question 13 is 2 marks)

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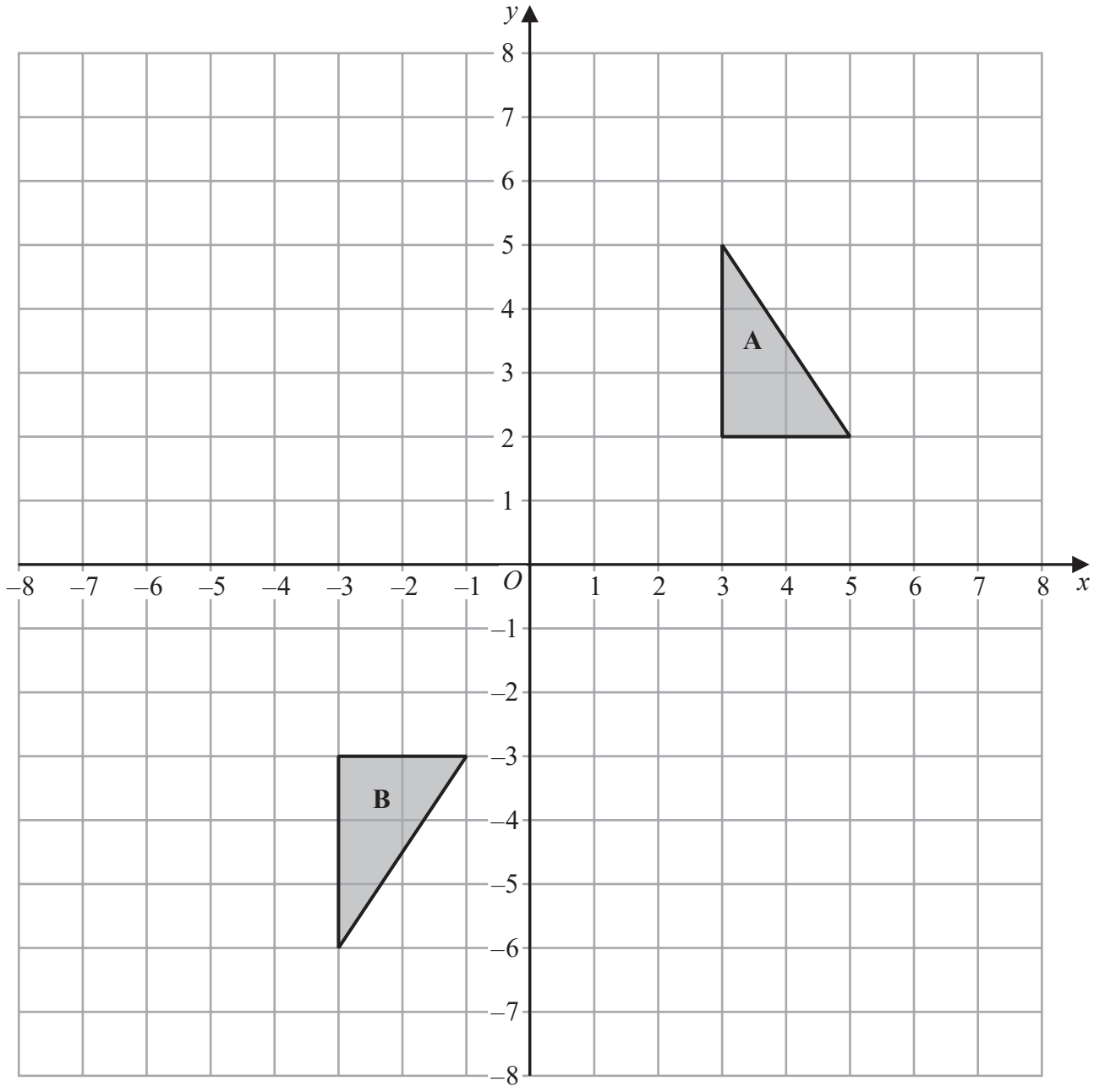

Shape **A** can be transformed to shape **B** by a reflection in the x-axis followed by a translation $\begin{pmatrix} c \\ d \end{pmatrix}$

Find the value of c and the value of d.

$c =$ .....

$d =$ .....

(Total for Question 14 is 3 marks)

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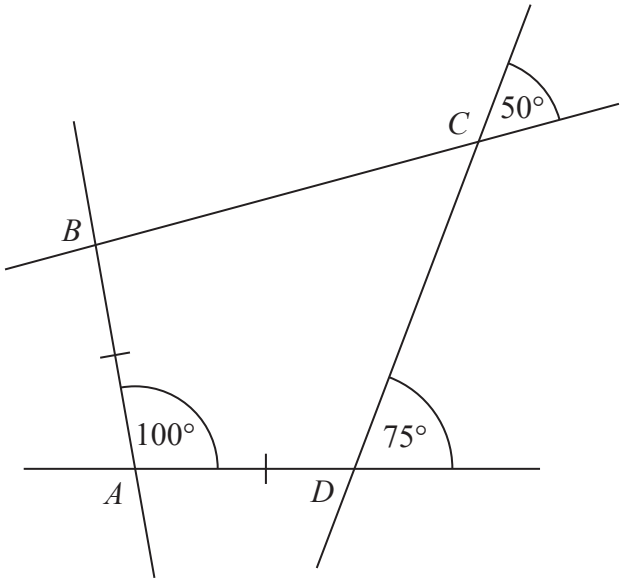
15 The diagram shows quadrilateral *ABCD* with each of its sides extended.



$AB = AD$

Show that *ABCD* is a kite.
Give a reason for each stage of your working.

(Total for Question 15 is 4 marks)

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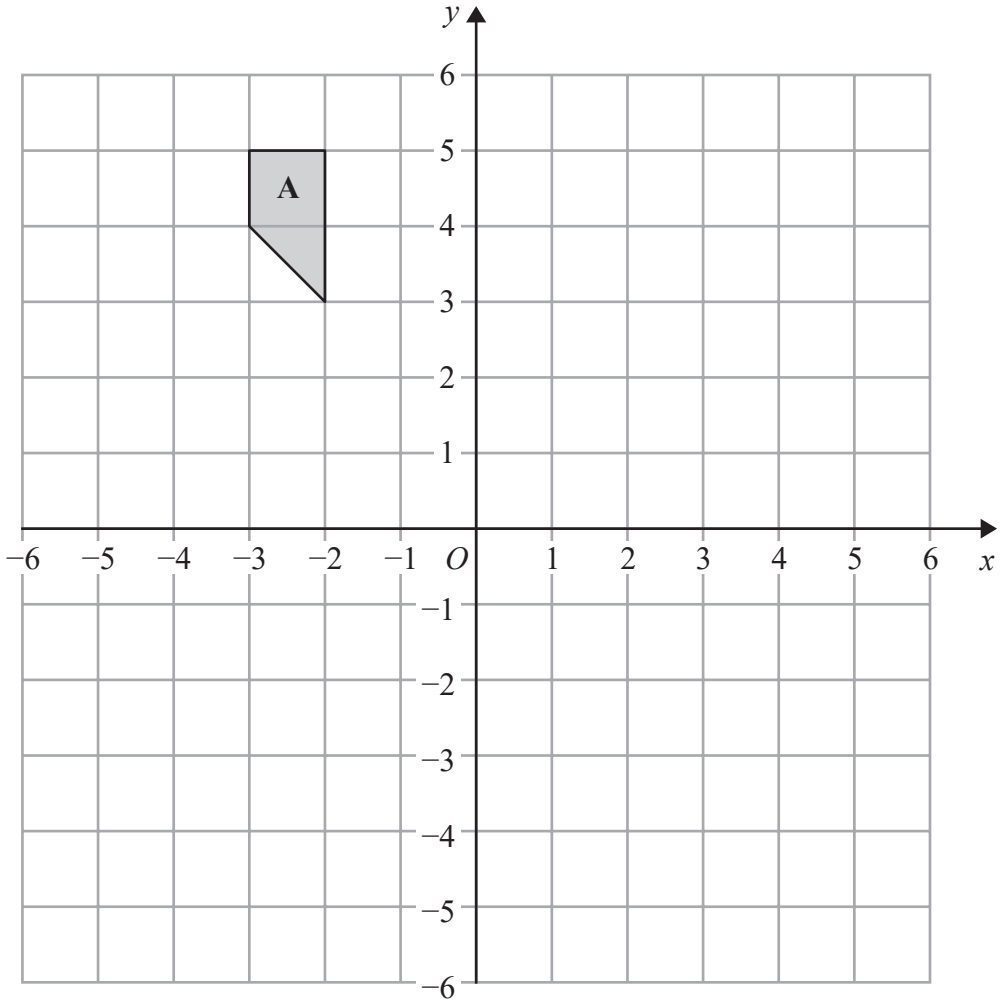
16



Rotate shape **A** 180° about (1, 0)

(Total for Question 16 is 2 marks)

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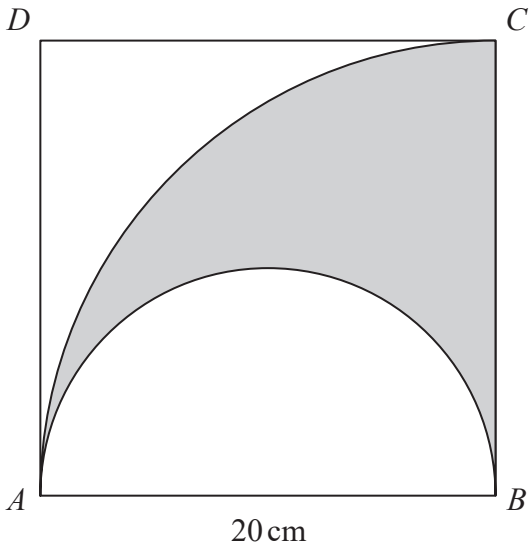
17 The diagram shows a square $ABCD$ with sides of length 20 cm.
It also shows a semicircle and an arc of a circle.



AB is the diameter of the semicircle.
AC is an arc of a circle with centre B.

Show that $\dfrac{\text{area of shaded region}}{\text{area of square}} = \dfrac{\pi}{8}$

(Total for Question 17 is 4 marks)

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18 The size of each interior angle of a regular polygon is 11 times the size of each exterior angle.

Work out how many sides the polygon has.

.....

(Total for Question 18 is 3 marks)

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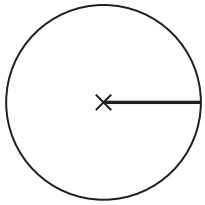
19 The centre of this circle is marked with a cross (×).

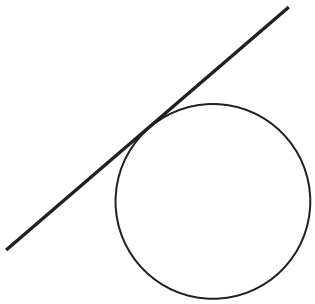


(a) Write down the mathematical name of the straight line shown in the circle.

.....

(1)

(b) Write down the mathematical name of the straight line that is touching the circle.



.....

(1)

(Total for Question 19 is 2 marks)

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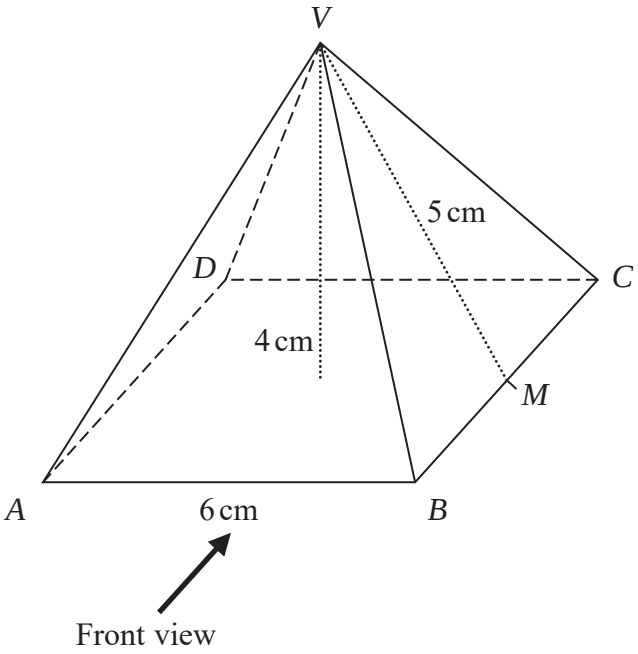
20 Here is a solid square-based pyramid, *VABCD*.



The base of the pyramid is a square of side 6 cm.
The height of the pyramid is 4 cm.
M is the midpoint of *BC* and *VM* = 5 cm.

(a) Draw an accurate front elevation of the pyramid from the direction of the arrow.

(2)

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(b) Work out the total surface area of the pyramid.

.....

(4)

(Total for Question 20 is 6 marks)

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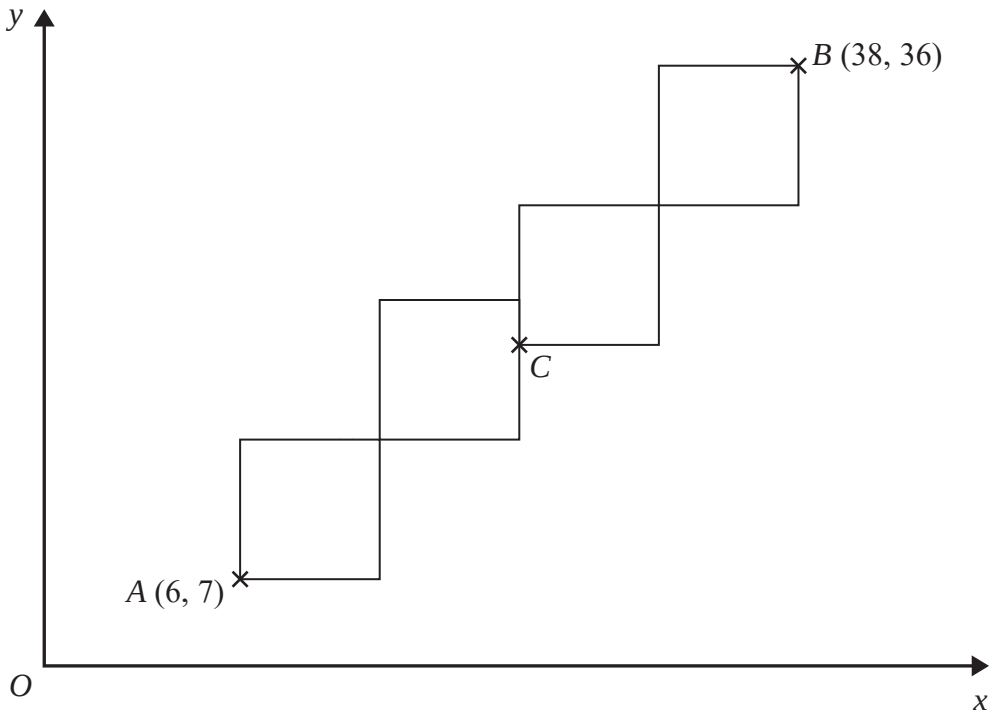
21 A pattern is made from four identical squares.

The sides of the squares are parallel to the axes.



Point *A* has coordinates (6, 7)
Point *B* has coordinates (38, 36)
Point *C* is marked on the diagram.

Work out the coordinates of *C*.

(..... , ...)

(Total for Question 21 is 5 marks)

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22 $\mathbf{a} = \begin{pmatrix} 5 \\ 2 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} -1 \\ 7 \end{pmatrix}$

Work out $2\mathbf{a} + \mathbf{b}$ as a column vector.

$\begin{pmatrix} \text{.....} \\ \text{.....} \end{pmatrix}$

(Total for Question 22 is 2 marks)

23 The total surface area of a cube is 294 cm^2.

Work out the volume of the cube.

..... cm^3

(Total for Question 23 is 4 marks)

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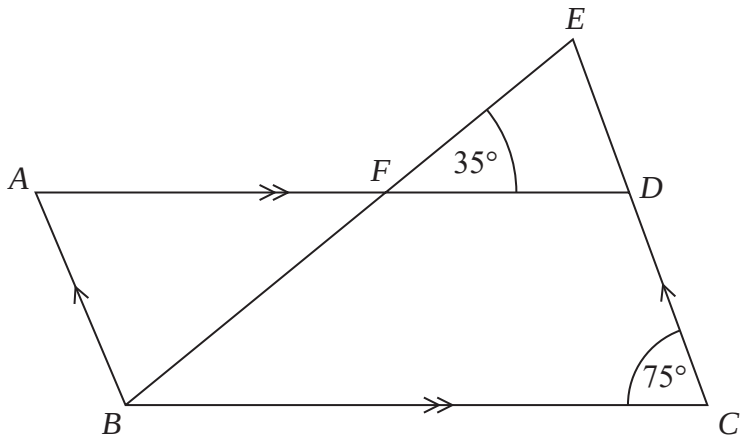
24



ABCD is a parallelogram.
EDC is a straight line.
F is the point on *AD* so that *BFE* is a straight line.

Angle *EFD* = 35°
Angle *DCB* = 75°

Show that angle *ABF* = 70°
Give a reason for each stage of your working.

(Total for Question 24 is 4 marks)

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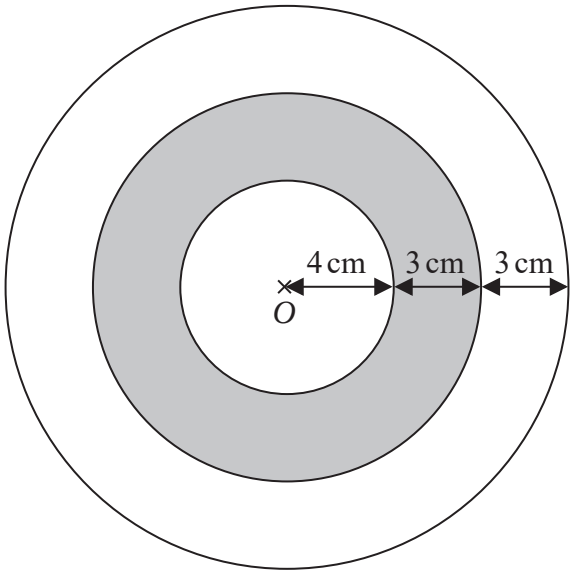
25 The diagram shows a logo made from three circles.



Each circle has centre O.

Daisy says that exactly $\frac{1}{3}$ of the logo is shaded.

Is Daisy correct?
You must show all your working.

(Total for Question 25 is 4 marks)

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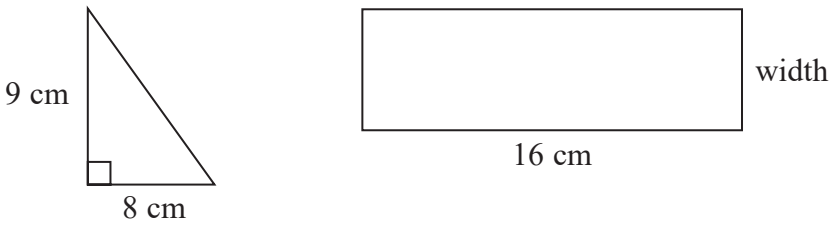
26 Here are a triangle and a rectangle.



The area of the rectangle is 6 times the area of the triangle.

Work out the width of the rectangle.

..... cm

(Total for Question 26 is 4 marks)

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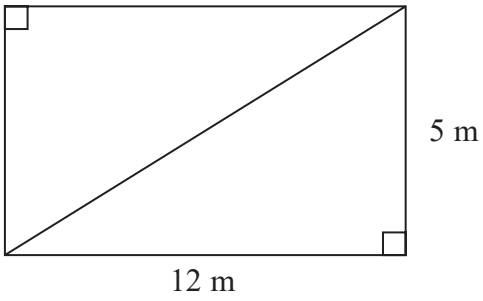
27 This rectangular frame is made from 5 straight pieces of metal.



The weight of the metal is 1.5 kg per metre.

Work out the total weight of the metal in the frame.

..... kg

(Total for Question 27 is 5 marks)

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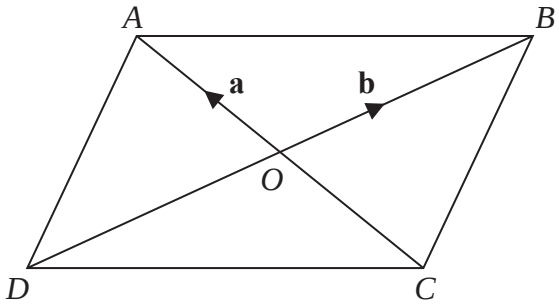
28



ABCD is a parallelogram.
The diagonals of the parallelogram intersect at *O*.

$\overrightarrow{OA} = \mathbf{a}$ and $\overrightarrow{OB} = \mathbf{b}$

(a) Find, in terms of **b**, the vector $\overrightarrow{DB}$.

.....

(1)

(b) Find, in terms of **a** and **b**, the vector $\overrightarrow{AB}$.

.....

(1)

(c) Find, in terms of **a** and **b**, the vector $\overrightarrow{AD}$.

.....

(1)

(Total for Question 28 is 3 marks)

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29 Carpet tiles are going to be used to cover a floor.

The floor is a 1200 mm by 1000 mm rectangle.
Each carpet tile is a 40 cm by 30 cm rectangle.

Exactly 10 carpet tiles can be used to cover the floor completely.

Show in a labelled sketch how this can be done.

(Total for Question 29 is 3 marks)

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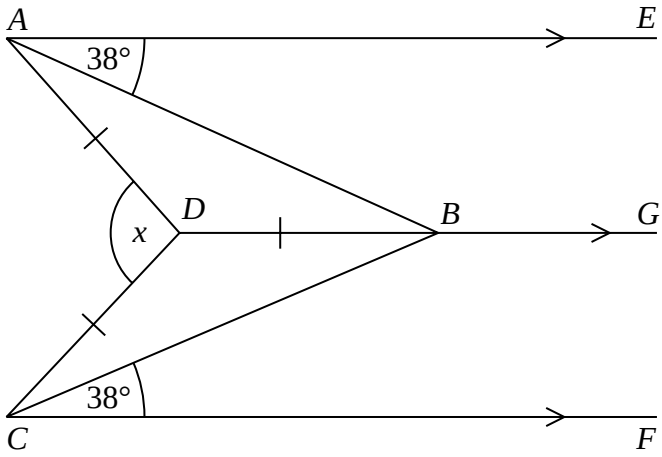
30



AE, *DBG* and *CF* are parallel.
DA = *DB* = *DC*.
Angle *EAB* = angle *BCF* = 38°

Work out the size of the angle marked *x*.
You must show your working.

.....°

(Total for Question 30 is 3 marks)

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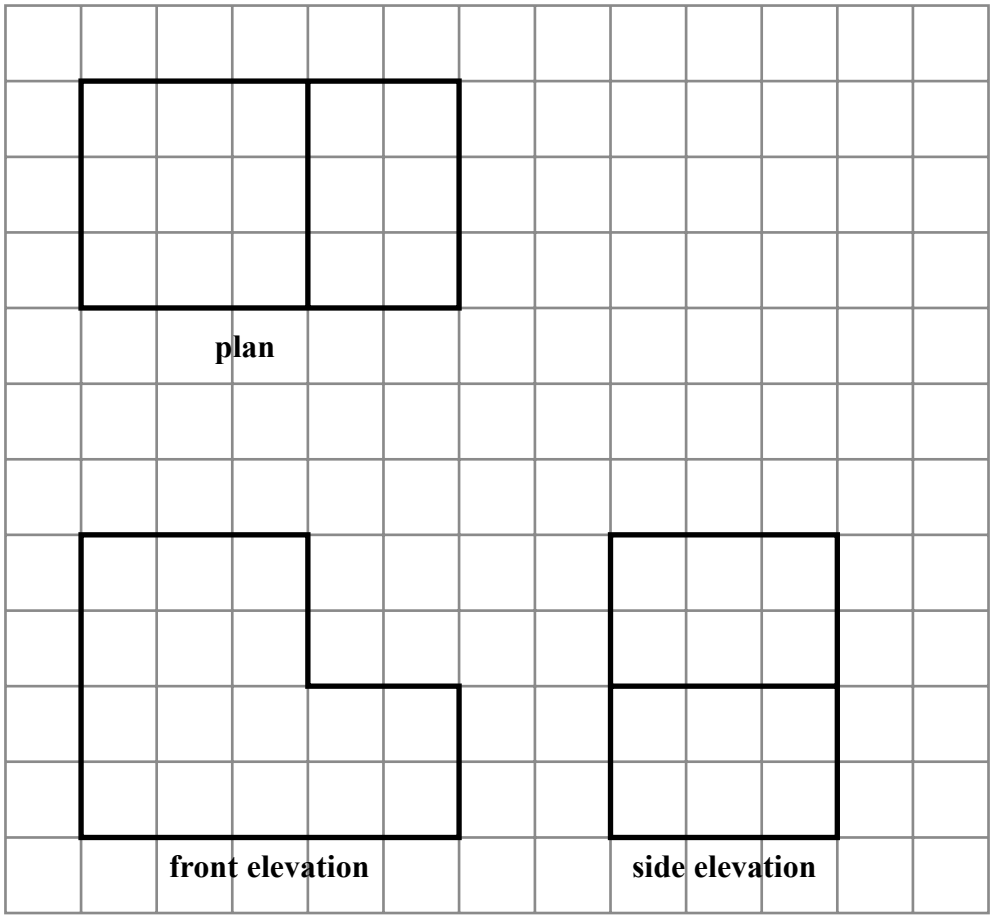
31 The plan, front elevation and side elevation of a solid prism are drawn on a centimetre grid.



In the space below, draw a sketch of the solid prism.
Write the dimensions of the prism on your sketch.

(Total for Question 31 is 2 marks)

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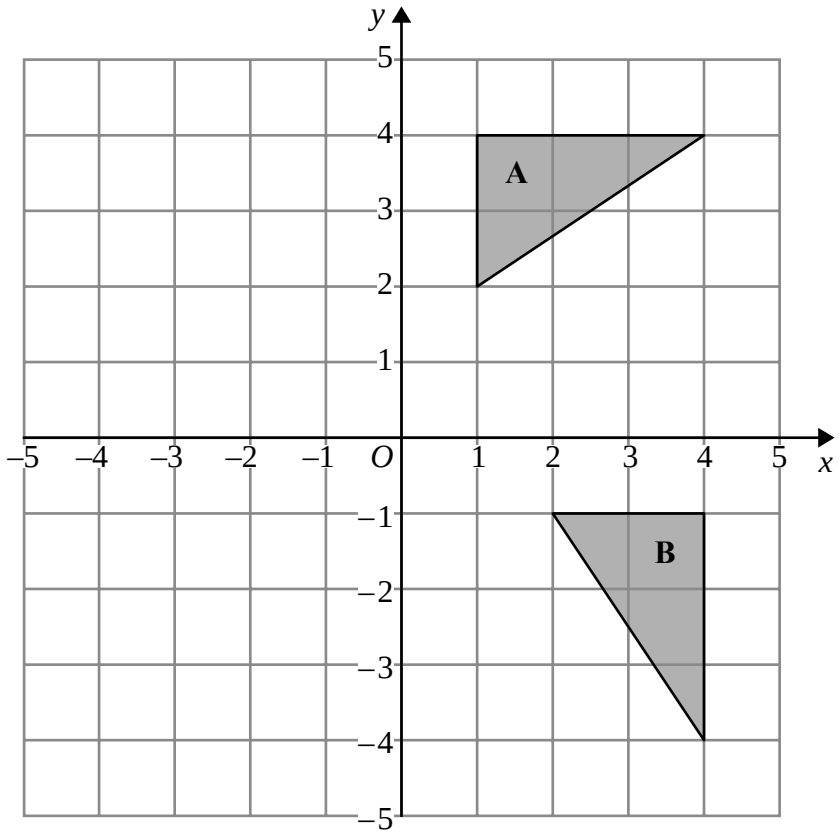
32



Describe fully the single transformation that maps triangle **A** onto triangle **B**.

.....

.....

(Total for Question 32 is 2 marks)

33 $\mathbf{a} = \begin{pmatrix} 3 \\ -7 \end{pmatrix}$, $\mathbf{b} = \begin{pmatrix} 4 \\ 2 \end{pmatrix}$

Work out $\mathbf{b} - 2\mathbf{a}$ as a column vector.

.....

(Total for Question 33 is 2 marks)

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34 An American airline has a maximum size for bags on its planes.
The diagram shows the maximum dimensions.

Chris has a bag.

It has
height 50 cm
width 40 cm
depth 20 cm

1 inch = 2.54 cm

Can Chris take this bag on the plane?
You must show your working.

(Total for Question 34 is 3 marks)

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35 This is a scale plan of a rectangular floor.

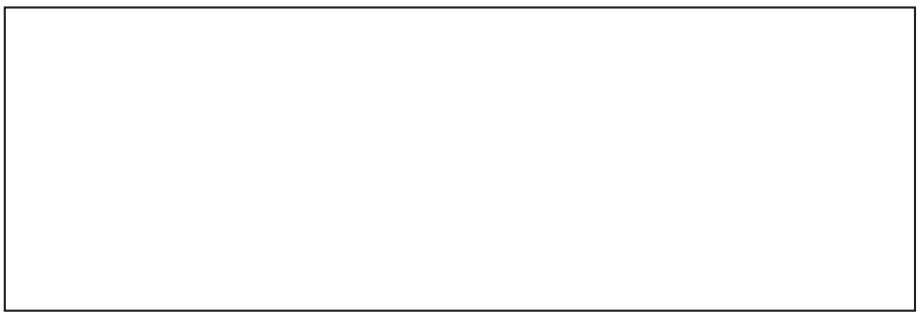


Diagram **accurately** drawn

Scale: 1 cm represents 2 m

Mrs Bridges is going to cover the floor with boards.
Each board is rectangular in shape.

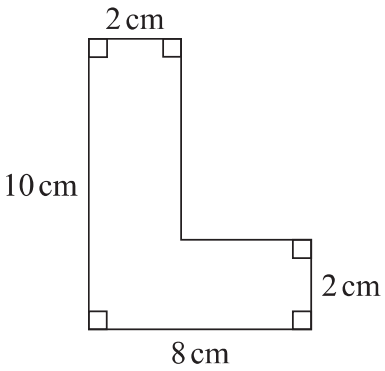
Each board is 1.2 m long and 1 m wide.

Mrs Bridges has 150 boards.
Does she have enough boards?
You must show how you get your answer.

(Total for Question 35 is 3 marks)

EXPERT TUITION

36

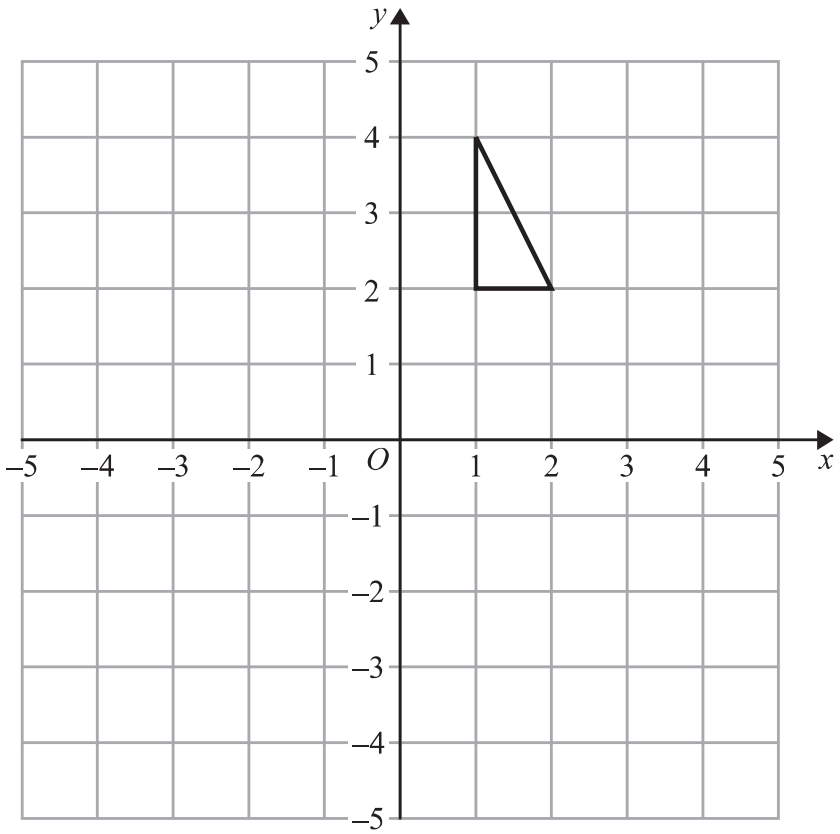


Work out the area of the shape.

..... cm^2

(Total for Question 36 is 2 marks)

37

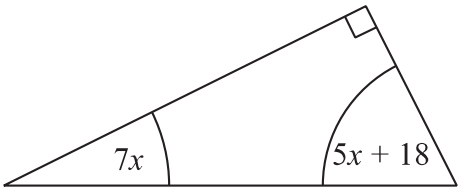


On the grid, rotate the triangle 90° clockwise about (0, 0).

(Total for Question 37 is 2 marks)

EXPERT TUITION

38 The diagram shows a right-angled triangle.



All the angles are in degrees.

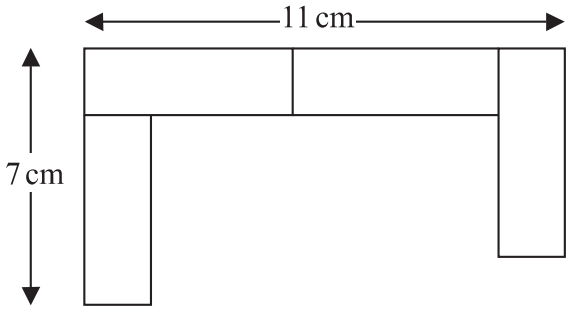
Work out the size of the smallest angle of the triangle.

.....°

(Total for Question 38 is 3 marks)

EXPERT TUITION

39 A pattern is made using identical rectangular tiles.

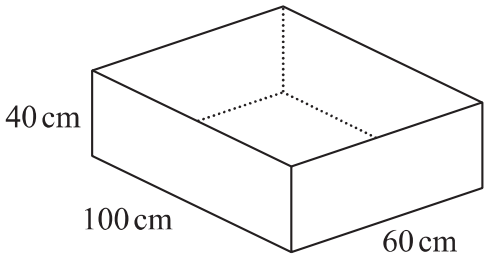


Find the total area of the pattern.

..... cm^2

(Total for Question 39 is 4 marks)

40 The diagram shows a sand pit.
The sand pit is in the shape of a cuboid.



Sally wants to fill the sand pit with sand.
A bag of sand costs £2.50
There are 8 litres of sand in each bag.

Sally says,

"The sand will cost less than £70"

Show that Sally is wrong.

(Total for Question 40 is 5 marks)

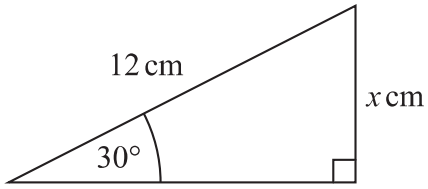
EXPERT TUITION

41 (a) Write down the exact value of $\cos 30°$

.....

(1)

(b)



Given that $\sin 30° = 0.5$,
work out the value of x.

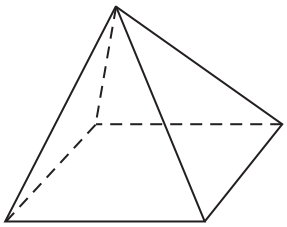
.....

(2)

(Total for Question 41 is 3 marks)

---

42 Here is a square-based pyramid.



(i) How many faces does the pyramid have?

.....

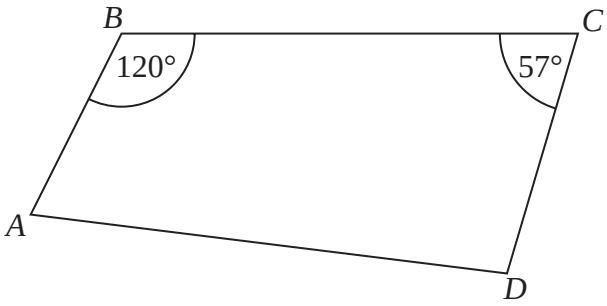
(ii) How many edges does the pyramid have?

.....

(Total for Question 42 is 2 marks)

EXPERT TUITION

43 The diagram shows a quadrilateral *ABCD*.



Is *AB* parallel to *DC*?
You must give your reasoning.

(Total for Question 43 is 3 marks)

EXPERT TUITION

44 Triangle *ABC* has perimeter 20 cm.

AB = 7 cm.
BC = 4 cm.

By calculation, deduce whether triangle *ABC* is a right-angled triangle.

(Total for Question 44 is 4 marks)

45 One sheet of A3 card has area $\frac{1}{8}$ m^2.

The card has a mass of 160 g per m^2.

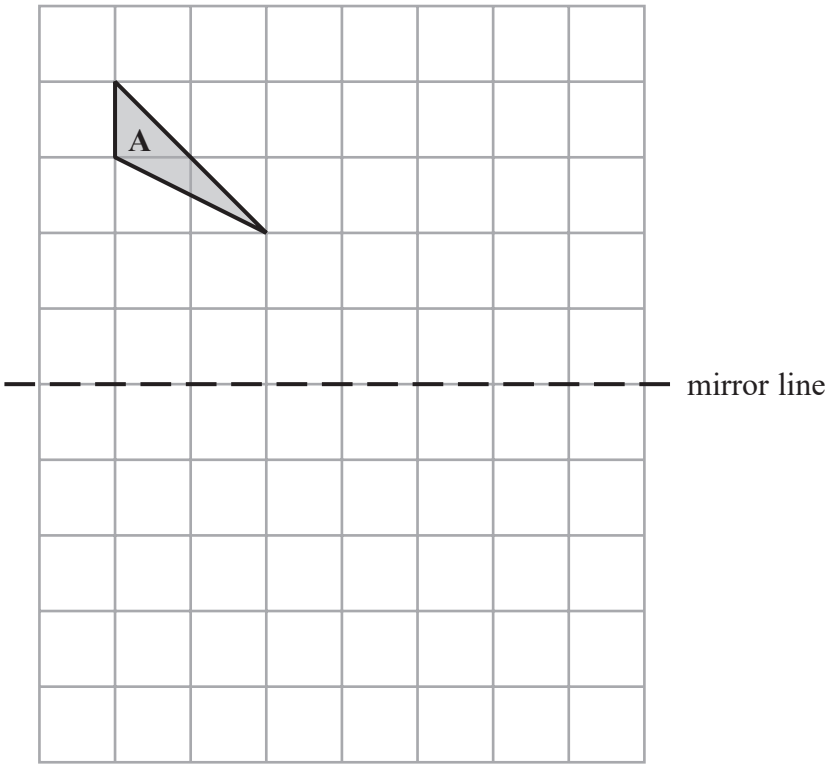
Work out the total mass of 25 sheets of A3 card.

.....

(Total for Question 45 is 4 marks)

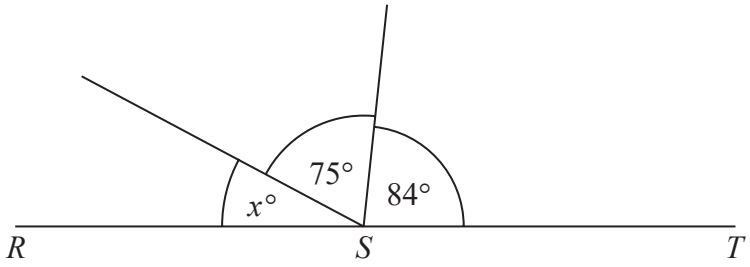
EXPERT TUITION

46 Reflect shape **A** in the mirror line.



(Total for Question 46 is 2 marks)

47



RST is a straight line.

(i) Work out the value of x.

.....

(2)

(ii) Give a reason for your answer.

.....

.....

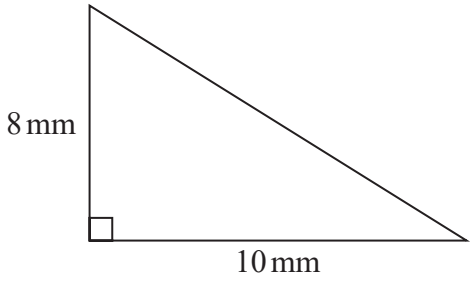
.....

(1)

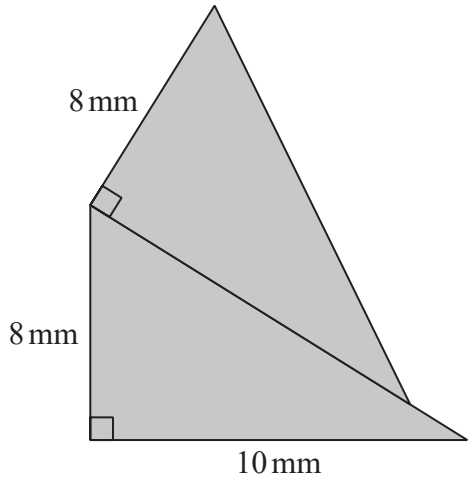
(Total for Question 47 is 3 marks)

EXPERT TUITION

48 Here is a right-angled triangle.



The shaded shape below is made from two of these triangles.



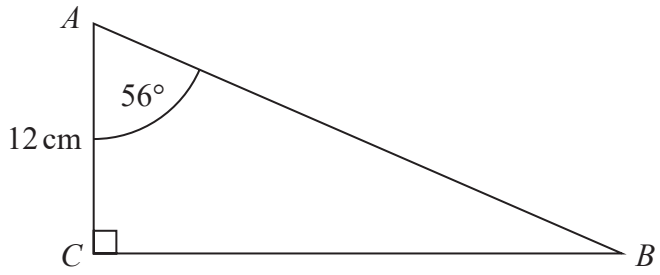
Work out the perimeter of the shaded shape.
Give your answer correct to 3 significant figures.

..... mm

(Total for Question 48 is 4 marks)

EXPERT TUITION

49 ABC is a right-angled triangle.

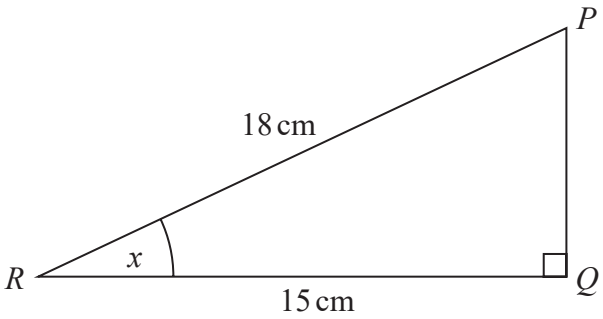


(a) Work out the length of BC.
Give your answer correct to 1 decimal place.

..... cm

(2)

PQR is a right-angled triangle.



(b) Work out the size of the angle marked x.
Give your answer correct to 1 decimal place.

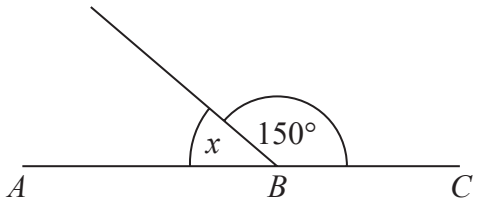
.....°

(2)

(Total for Question 49 is 4 marks)

EXPERT TUITION

50



ABC is a straight line.

(a) (i) Work out the size of the angle marked *x*.

.....°

(1)

(ii) Give a reason for your answer.

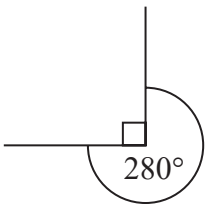
.....

.....

.....

(1)

The diagram below is wrong.



(b) Explain why.

.....

.....

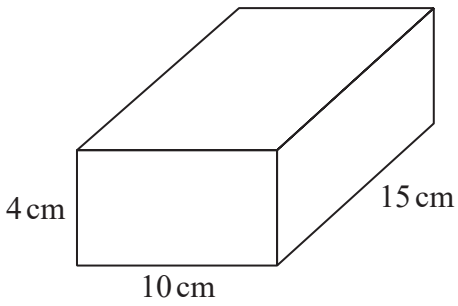
.....

(1)

(Total for Question 50 is 3 marks)

EXPERT TUITION

51 Here is a cuboid.



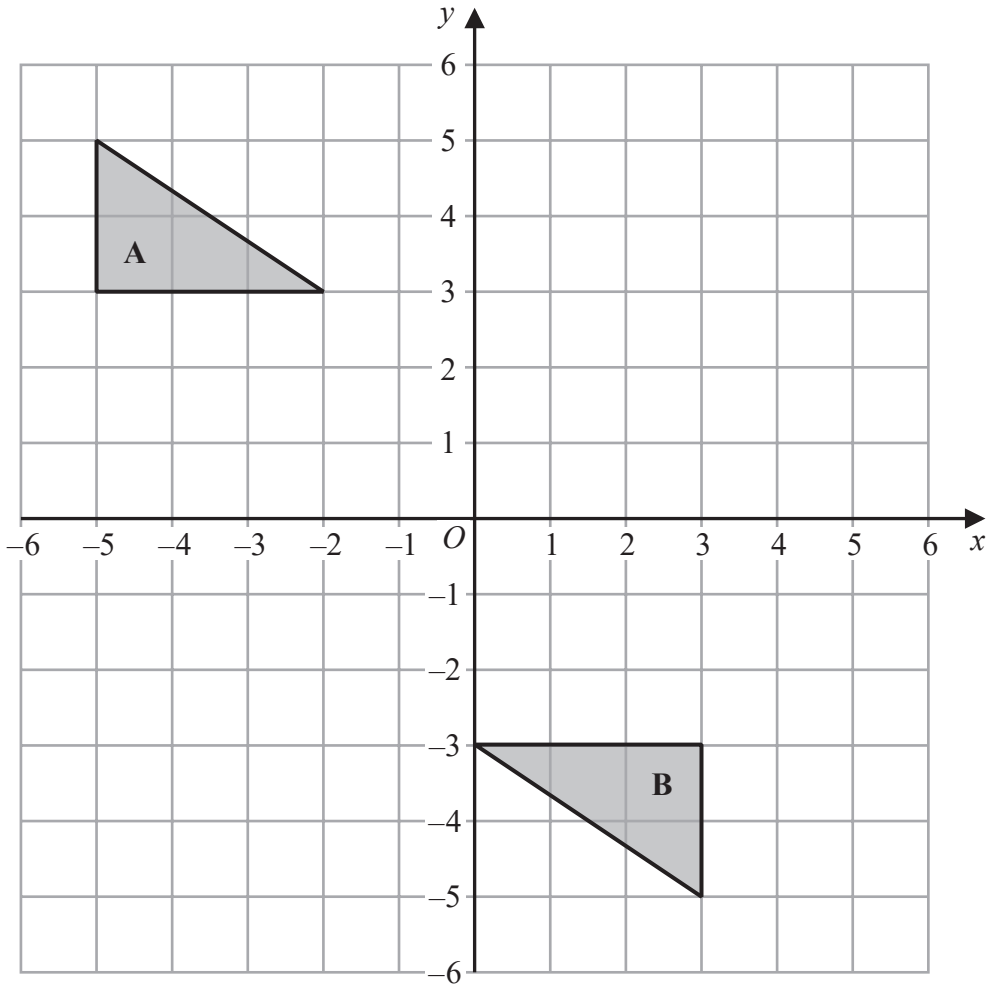
Work out the volume of the cuboid.

.....

(Total for Question 51 is 3 marks)

EXPERT TUITION

52



Describe fully the single transformation that maps triangle **A** onto triangle **B**.

.....

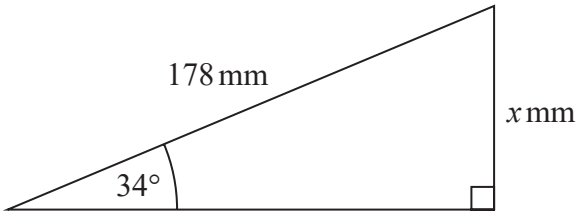
.....

.....

(Total for Question 52 is 2 marks)

EXPERT TUITION

53



Work out the value of x.
Give your answer correct to 1 decimal place.

.....

(Total for Question 53 is 2 marks)

54 $\mathbf{a} = \begin{pmatrix} 3 \\ 4 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} 5 \\ -2 \end{pmatrix}$

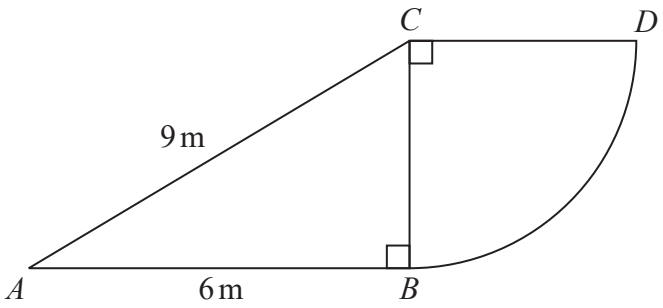
Find $2\mathbf{a} - 3\mathbf{b}$ as a column vector.

$\begin{pmatrix} \ldots\ldots \\ \ldots\ldots \end{pmatrix}$

(Total for Question 54 is 2 marks)

EXPERT TUITION

55 The diagram shows a right-angled triangle and a quarter circle.



The right-angled triangle ABC has angle $ABC = 90°$
The quarter circle has centre C and radius CB.

Work out the area of the quarter circle.
Give your answer correct to 3 significant figures.
You must show all your working.

..... m^2

(Total for Question 55 is 4 marks)

EXPERT TUITION

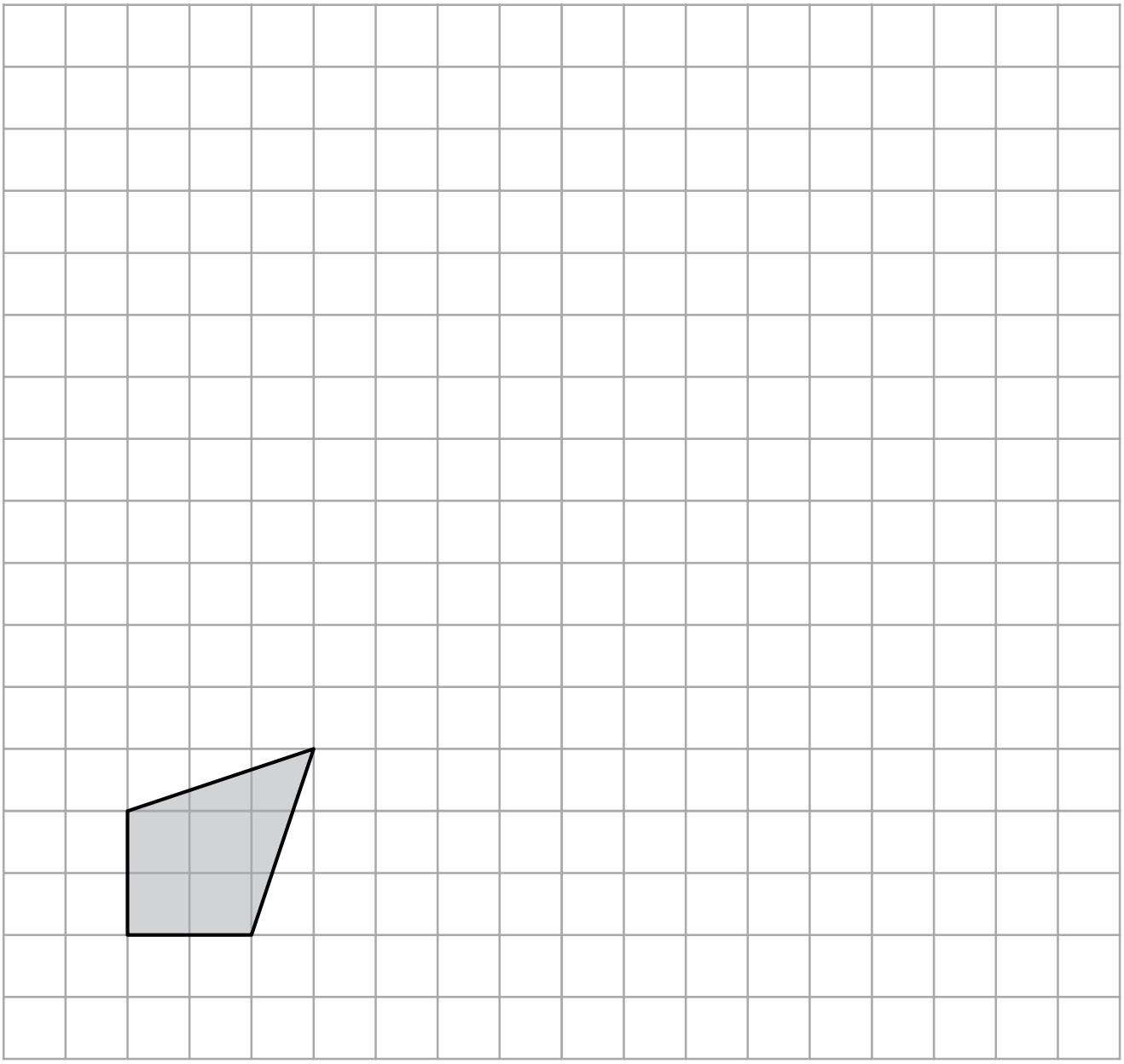
56 Each exterior angle of a regular polygon is 15°

Work out the number of sides of the polygon.

.....

(Total for Question 56 is 2 marks)

57

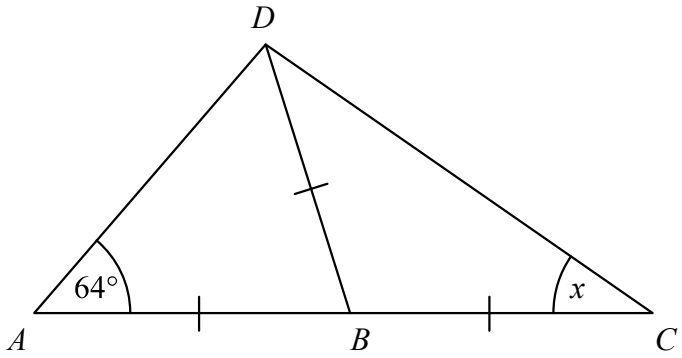


On the grid, draw an enlargement of the shaded shape with a scale factor of 3

(Total for Question 57 is 2 marks)

EXPERT TUITION

58



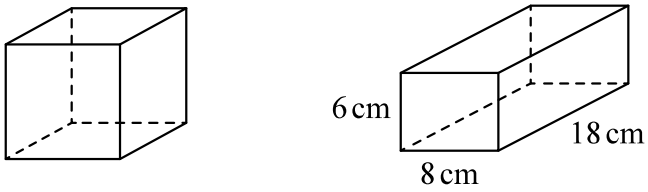
ABC is a straight line.
AB = *BC* = *BD*.
Angle *DAB* = 64°

Work out the size of the angle marked *x*.
Give a reason for each stage of your working.

(Total for Question 58 is 4 marks)

EXPERT TUITION

59 The diagram shows a cube and a cuboid.



The total surface area of the cube is equal to the total surface area of the cuboid.

Janet says,

"The volume of the cube is equal to the volume of the cuboid."

Is Janet correct?
You must show how you get your answer.

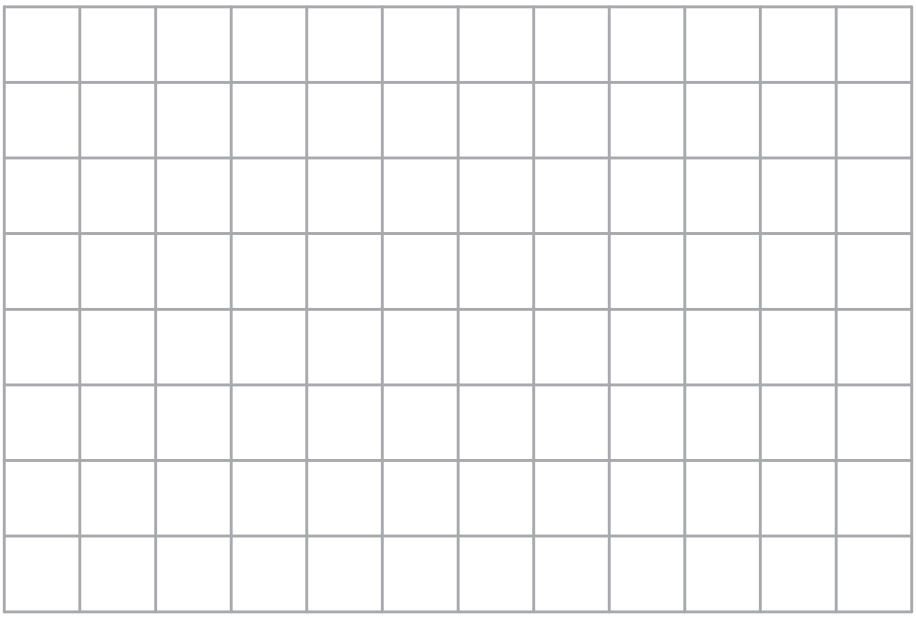
(Total for Question 59 is 5 marks)

EXPERT TUITION

60 Here are two column vectors.

$\mathbf{a} = \begin{pmatrix} 5 \\ 2 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} 3 \\ -1 \end{pmatrix}$

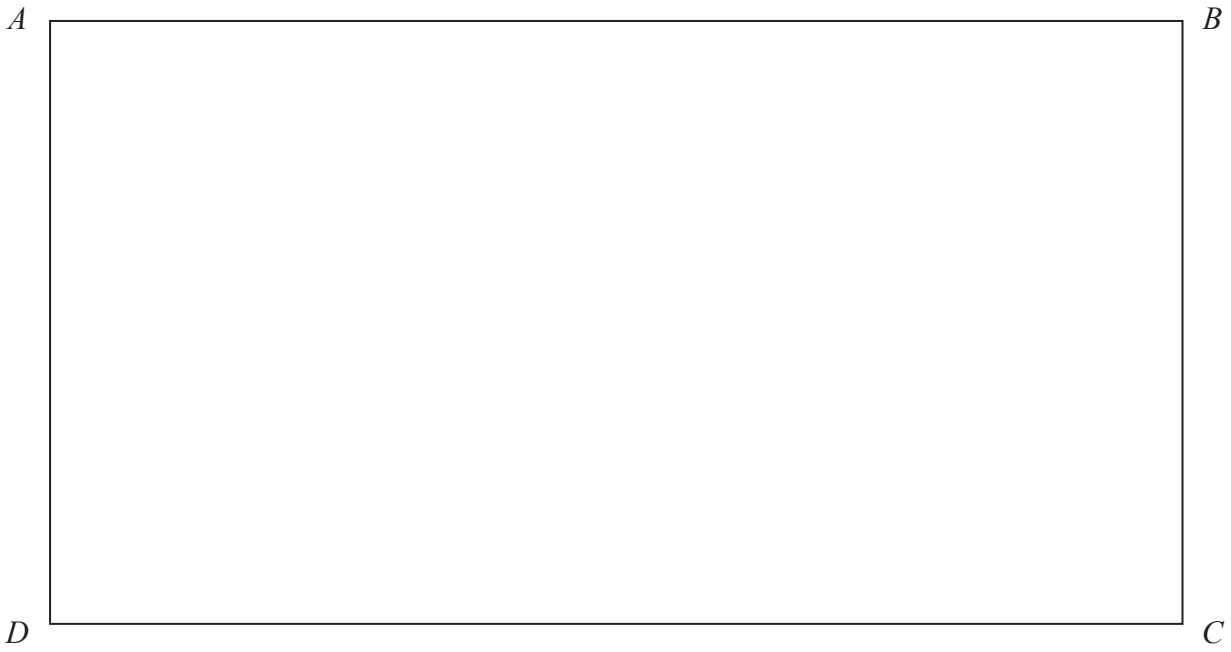
On the grid below, draw and label the vector $\mathbf{a} - 2\mathbf{b}$



(Total for Question 60 is 3 marks)

EXPERT TUITION

61 Here is a plan of a kitchen drawn to a scale of 1 : 30



Sam is going to put a small table in the kitchen.

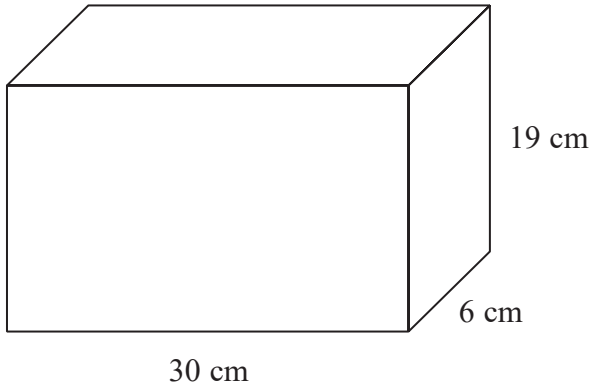
The table has to be
more than 180 cm from A
more than 150 cm from BC

Show, by shading on the diagram, the region where Sam can put the table.

(Total for Question 61 is 4 marks)

EXPERT TUITION

62 A container is in the shape of a cuboid.



The container is $\frac{2}{3}$ full of water.

A cup holds 275 m*l* of water.

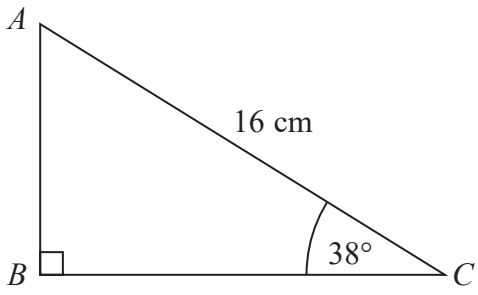
What is the greatest number of cups that can be completely filled with water from the container?

.....

(Total for Question 62 is 4 marks)

EXPERT TUITION

63 ABC is a right-angled triangle.



Calculate the length of AB.
Give your answer correct to 2 decimal places.

.....cm

(Total for Question 63 is 2 marks)

64 $\mathbf{a} = \begin{pmatrix} 4 \\ 5 \end{pmatrix}$ $\mathbf{b} = \begin{pmatrix} 3 \\ 2 \end{pmatrix}$

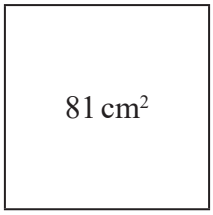
Work out $\mathbf{a} - 2\mathbf{b}$ as a column vector.

$\begin{pmatrix} \cdots\cdots \\ \cdots\cdots \end{pmatrix}$

(Total for Question 64 is 2 marks)

EXPERT TUITION

65 A square has an area of 81 cm^2

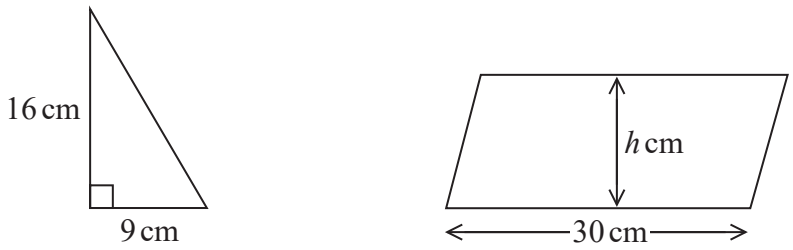


(a) Find the perimeter of the square.

.....cm

(2)

The diagram shows a right-angled triangle and a parallelogram.



The area of the parallelogram is 5 times the area of the triangle.
The perpendicular height of the parallelogram is h cm.

(b) Find the value of h.

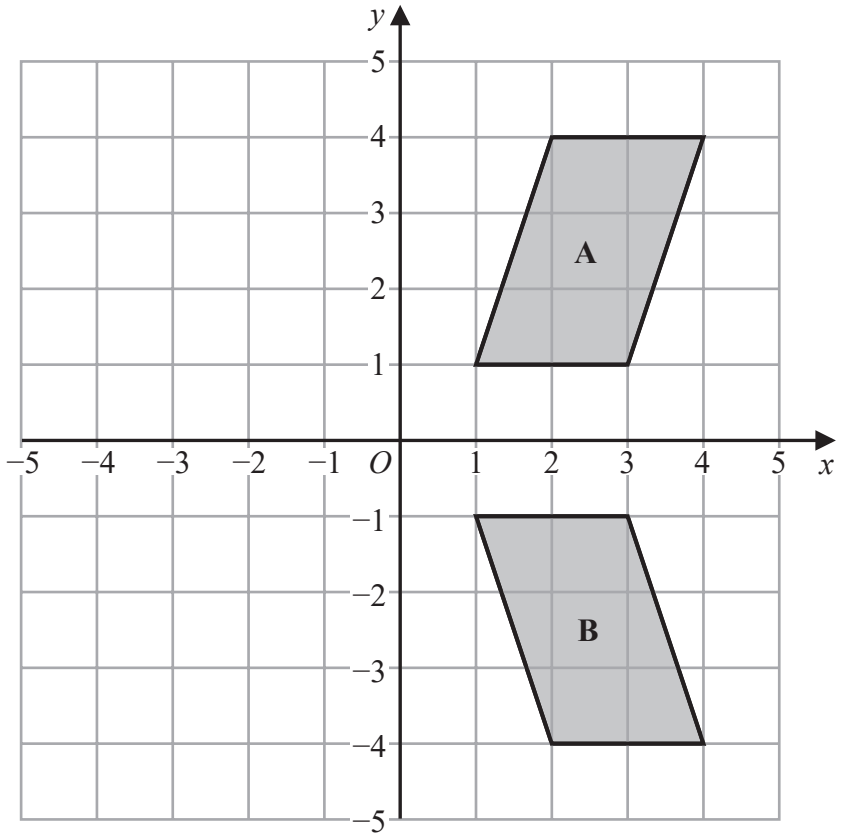
$h =$ .....

(3)

(Total for Question 65 is 5 marks)

EXPERT TUITION

66



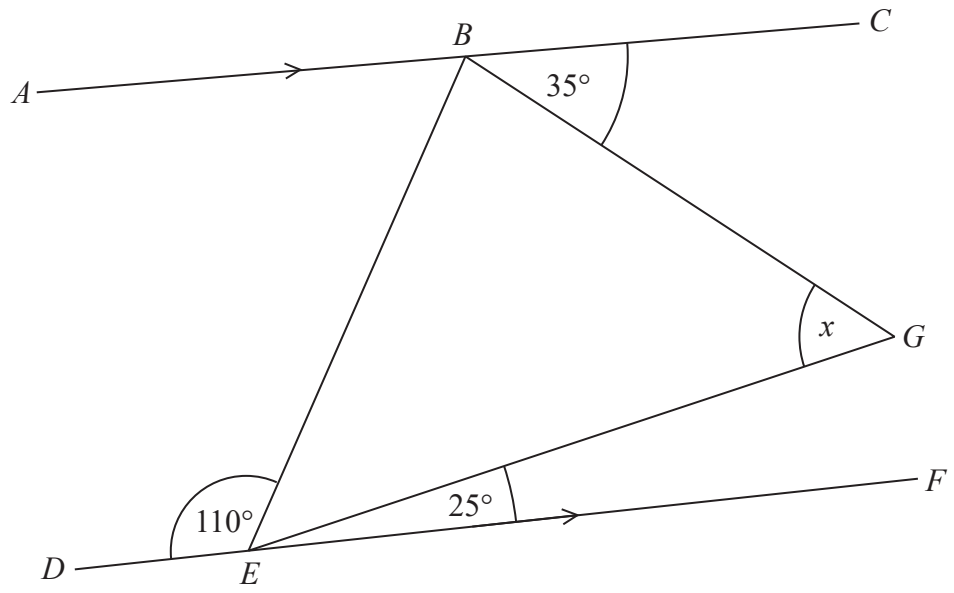
Describe fully the single transformation that maps shape **A** onto shape **B**.

.....

(Total for Question 66 is 2 marks)

EXPERT TUITION

67 *BEG* is a triangle.



ABC and *DEF* are parallel lines.

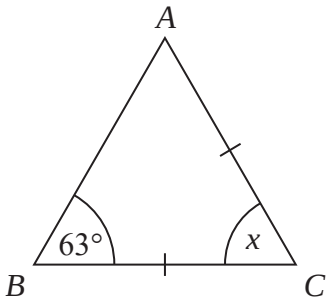
Work out the size of angle *x*.
Give a reason for each stage of your working.

.....°

.....

(Total for Question 67 is 4 marks)

68 Mary needs to work out the size of angle x in this diagram.



She writes

$x = 63°$ because base angles of an isosceles triangle are equal.

Mary is wrong.

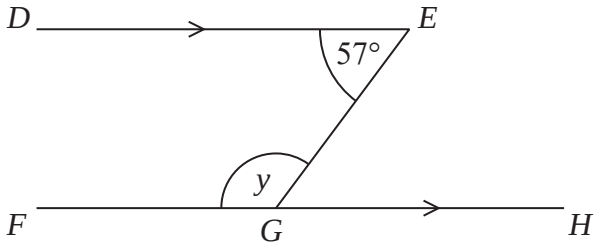
(a) Explain why.

.....

.....

(1)

William needs to work out the size of angle y in this diagram.



William writes

Working	**Reason**
angle $EGH = 57°$	because corresponding angles are equal
$y = 180° - 57°$ $y = 123°$	because angles on a straight line add up to 180°

One of William's reasons is wrong.

(b) Write down the correct reason.

.....

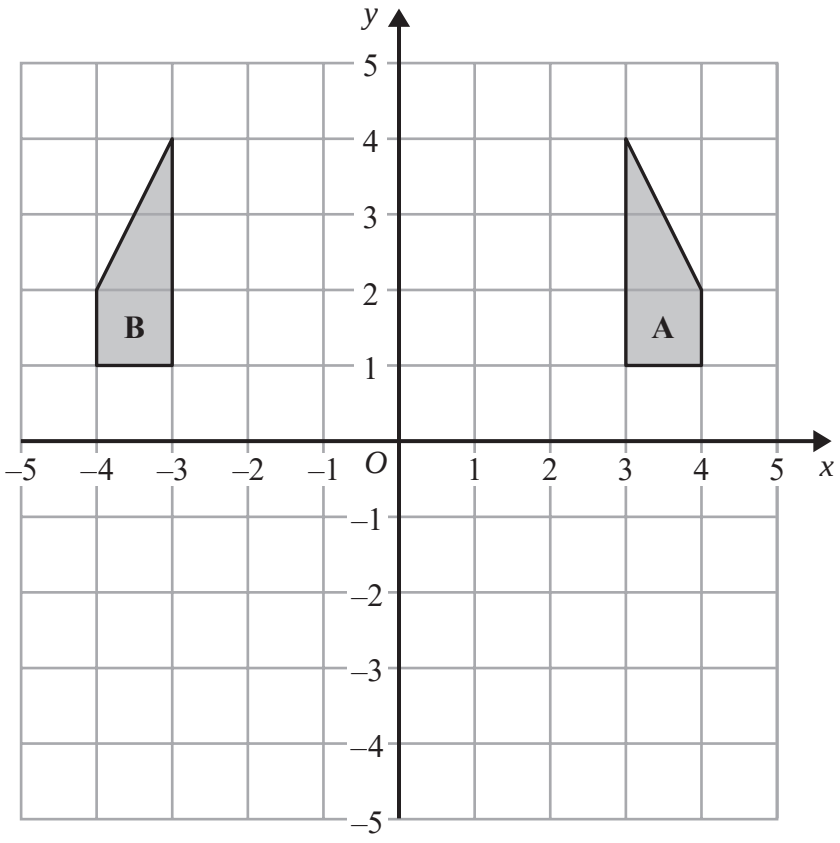
.....

(1)

(Total for Question 68 is 2 marks)

EXPERT TUITION

69



Describe fully the single transformation that maps shape **A** onto shape **B**.

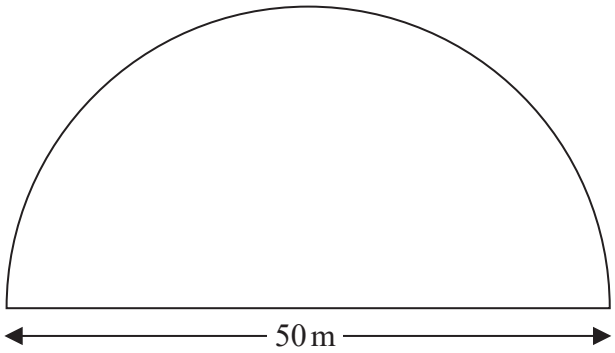
.....

.....

(Total for Question 69 is 2 marks)

EXPERT TUITION

70 A farmer has a field in the shape of a semicircle of diameter 50 m.



The farmer asks Jim to build a fence around the edge of the field.
Jim tells him how much it will cost.

Total cost = £29.86 per metre of fence plus £180 for each day's work

Jim takes three days to build the fence.

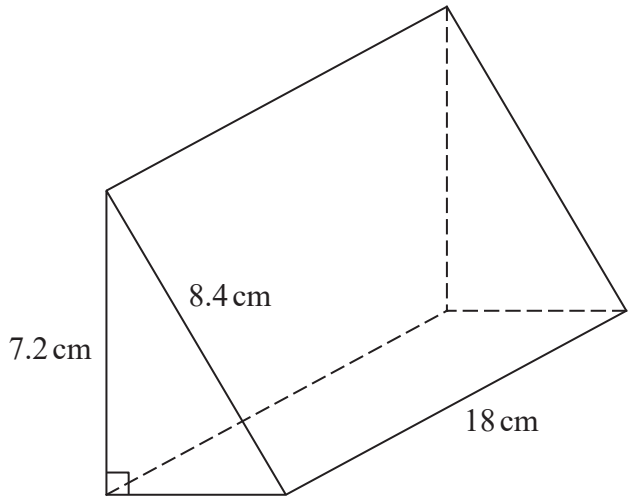
Work out the total cost.

£.....

(Total for Question 70 is 5 marks)

EXPERT TUITION

71 Here is a triangular prism.



Work out the volume of the prism.
Give your answer correct to 3 significant figures.

..... cm^3

(Total for Question 71 is 5 marks)

EXPERT TUITION

72 Here is a map of an island.

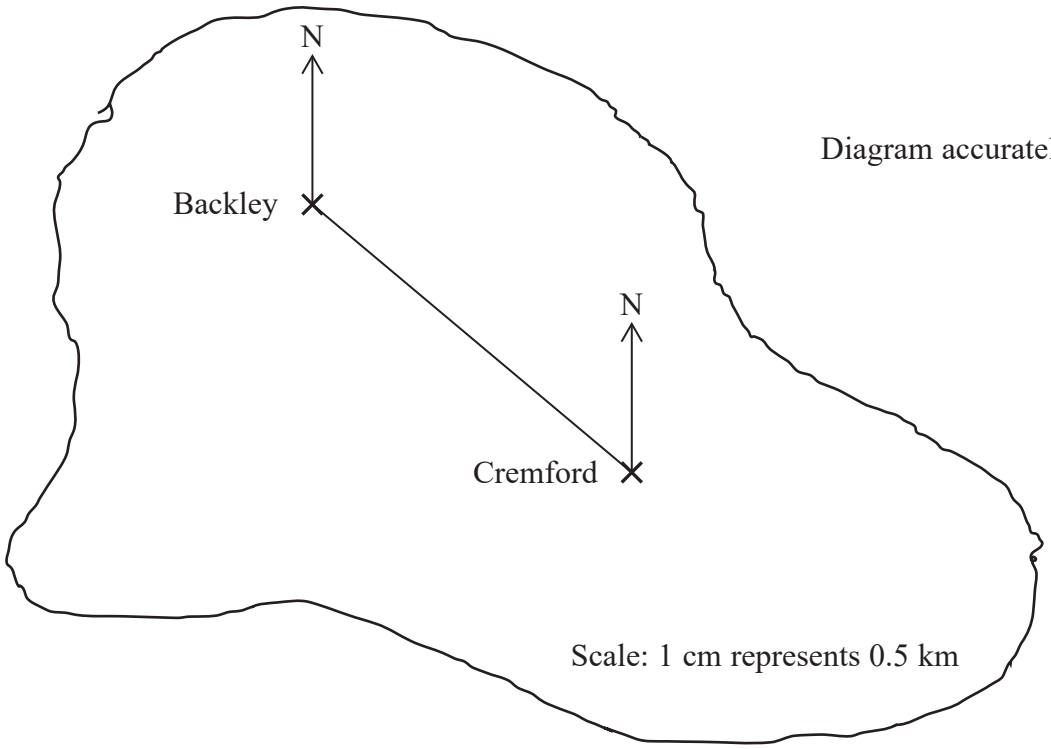


Diagram accurately drawn

A straight road joins the two villages, Backley and Cremford.

(a) Work out the real distance between the two villages.

.....km

(2)

(b) Find the bearing of Cremford from Backley.

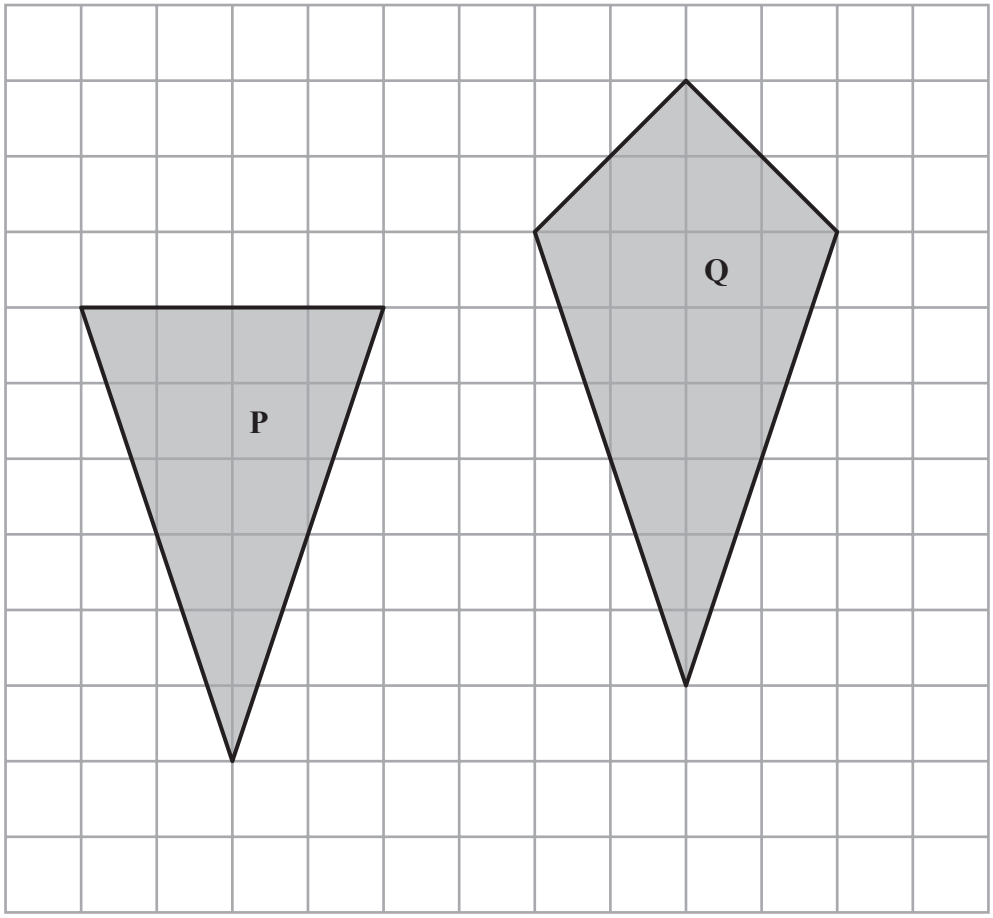
.....°

(1)

(Total for Question 72 is 3 marks)

EXPERT TUITION

73 The diagram shows two shapes drawn on a centimetre grid.



(a) Find the area of shape **P**.

.....

(2)

(b) Write down the mathematical name of quadrilateral **Q**.

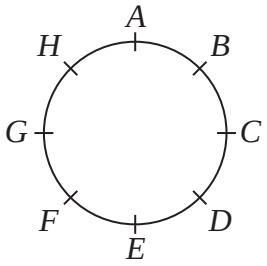
.....

(1)

(Total for Question 73 is 3 marks)

EXPERT TUITION

74 Hasmeet walks once round a circle with diameter 80 metres.



There are 8 points equally spaced on the circumference of the circle.

Find the distance Hasmeet walks between one point and the next point.

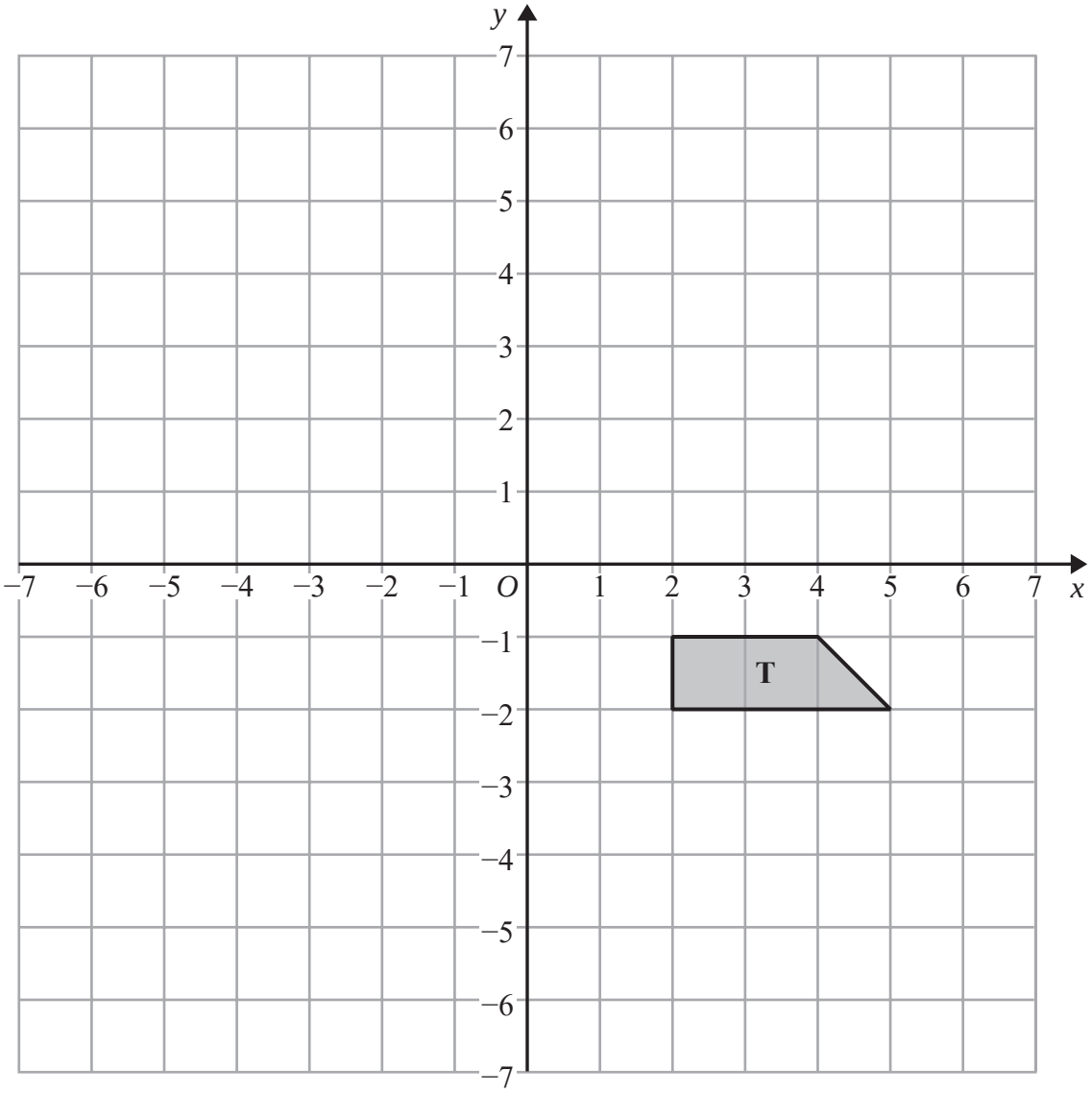
.....m

(2)

(Total for Question 74 is 2 marks)

EXPERT TUITION

75



(a) Rotate trapezium **T** 180° about the origin.
Label the new trapezium **A**.

(1)

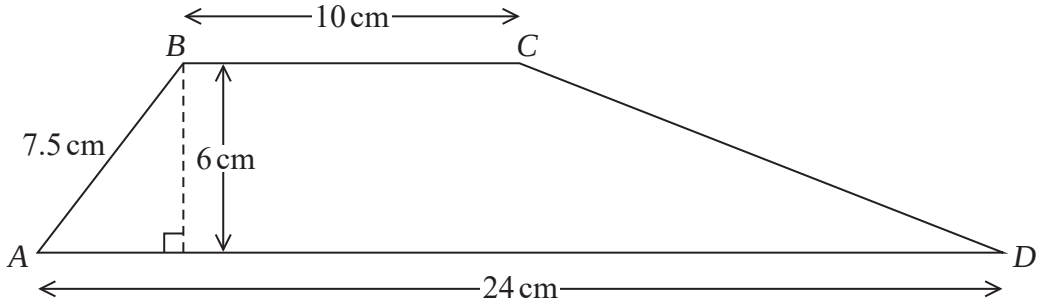
(b) Translate trapezium **T** by the vector $\begin{pmatrix} -1 \\ -3 \end{pmatrix}$
Label the new trapezium **B**.

(1)

(Total for Question 75 is 2 marks)

EXPERT TUITION

76 *ABCD* is a trapezium.



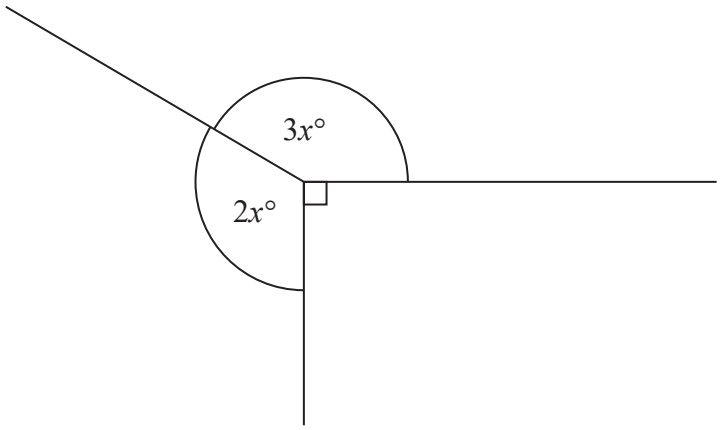
Work out the size of angle *CDA*.
Give your answer correct to 1 decimal place.

.....°

(Total for Question 76 is 5 marks)

EXPERT TUITION

77

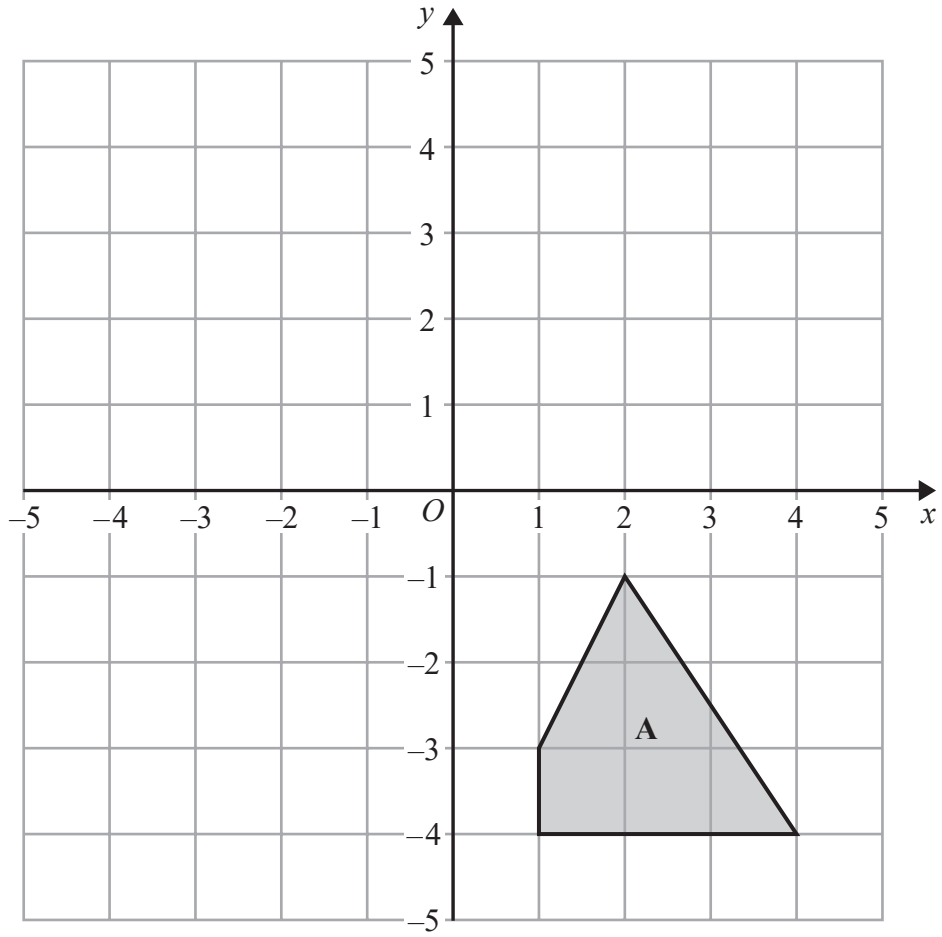


Find the value of x.

.....

(Total for Question 77 is 3 marks)

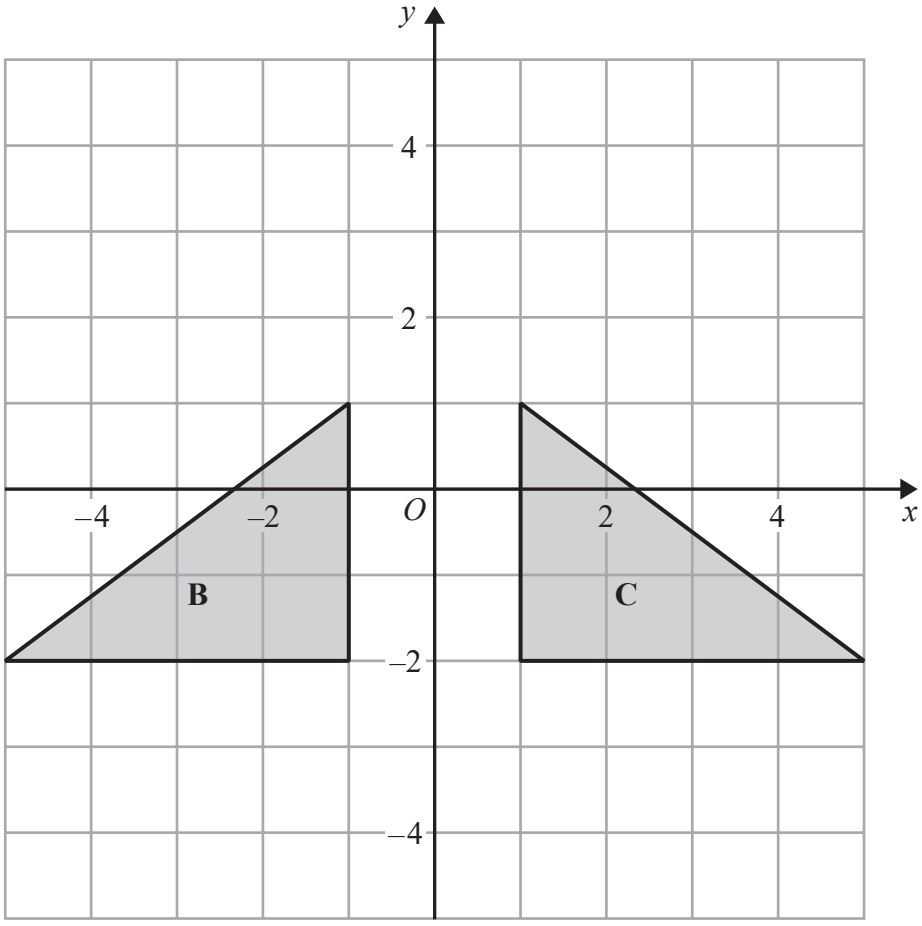
78



(a) Rotate shape **A** 90° clockwise about centre *O*.

(2)

EXPERT TUITION



(b) Describe fully the single transformation that maps triangle **B** onto triangle **C**.

.....

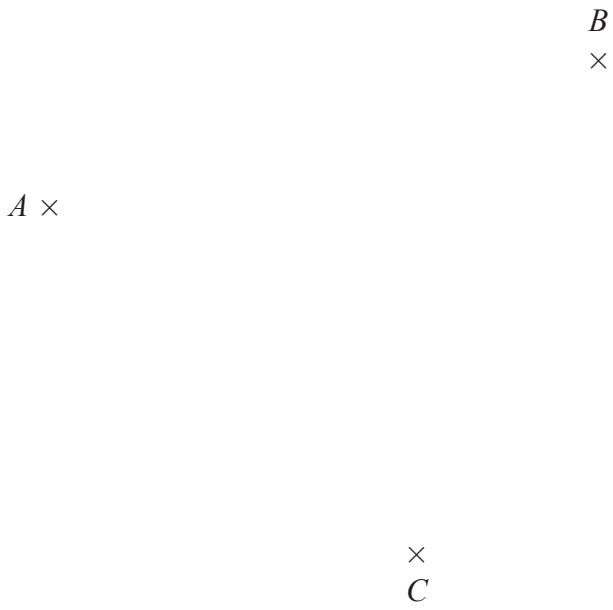
.....

(2)

(Total for Question 78 is 4 marks)

EXPERT TUITION

79 A, B and C are three points on a map.



1 cm represents 100 metres.

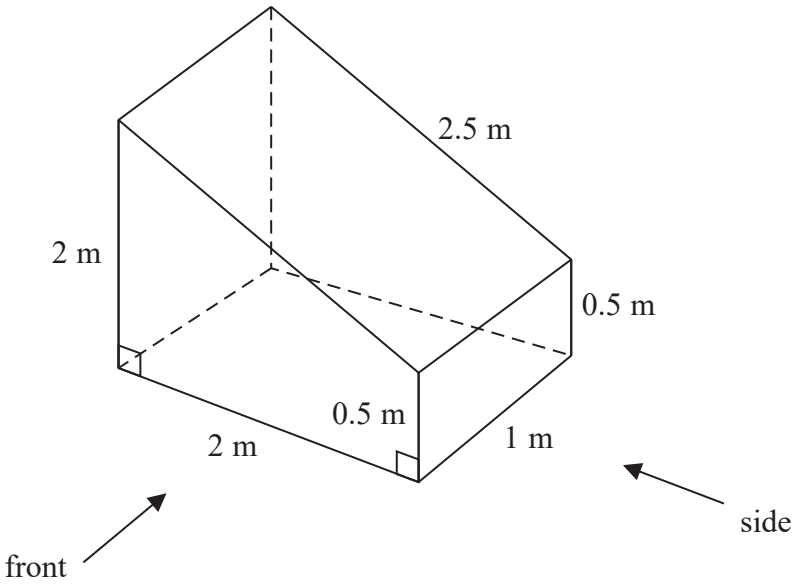
Point T is 250 metres from point A.
Point T is equidistant from point B and point C.

On the map, show one of the possible positions for point T.

(Total for Question 79 is 3 marks)

EXPERT TUITION

80 The diagram shows a prism with a cross section in the shape of a trapezium.

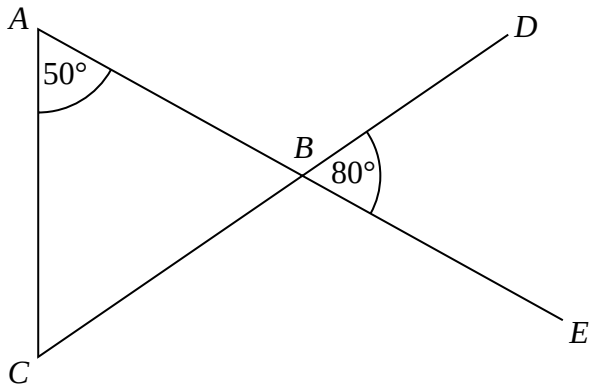


On the centimetre grid below, draw the front elevation and the side elevation of the prism.
Use a scale of 2 cm to 1 m.

(Total for Question 80 is 4 marks)

EXPERT TUITION

81



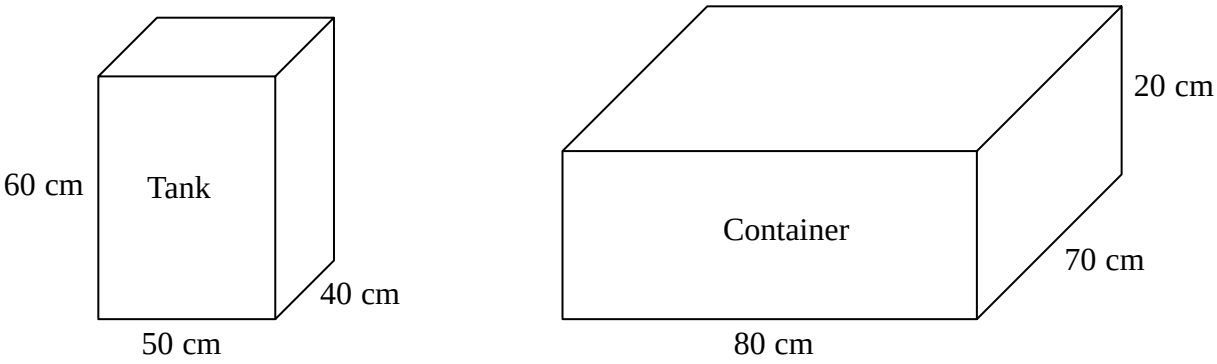
ABE and *CBD* are straight lines.

Show that triangle *ABC* is an isosceles triangle.
Give a reason for each stage of your working.

(Total for Question 81 is 4 marks)

EXPERT TUITION

82 The diagram shows a tank in the shape of a cuboid.
It also shows a container in the shape of a cuboid.



The tank is full of oil.
The container is empty.

35% of the oil from the tank is spilled.
The rest of the oil from the tank is put into the container.

Work out the height of the oil in the container.
Give your answer to an appropriate degree of accuracy.

..... cm

(Total for Question 82 is 5 marks)

EXPERT TUITION

83 The diagram below represents two towns on a map.

Diagram
accurately drawn

Scale: 1 cm represents 3 kilometres.

Work out the distance, in kilometres, between Towey and Worsley.

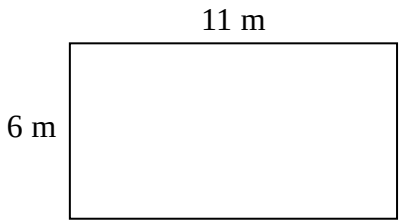
.....km

(Total for Question 83 is 2 marks)

EXPERT TUITION

84 A tin of varnish costs £15

A rectangular floor has dimensions 6 m by 11 m.
The floor is going to be covered in varnish.



Helen assumes that each tin of this varnish covers an area of 12 m^2.

(a) Using Helen's assumption, work out the cost of buying the varnish for this floor.

£.....

(4)

Helen finds that each tin of varnish covers less than 12 m^2.

(b) Explain how this might affect the number of tins she needs to buy.

.....

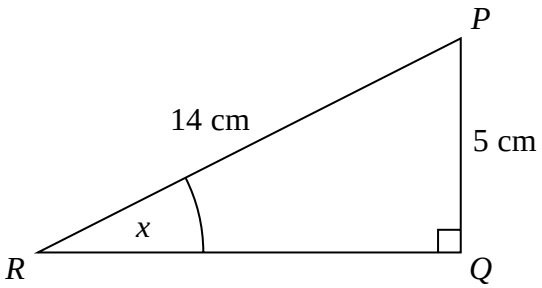
.....

(1)

(Total for Question 84 is 5 marks)

EXPERT TUITION

85 *PQR* is a right-angled triangle.



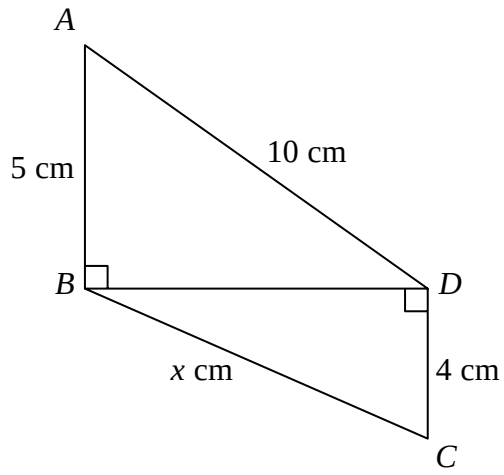
Work out the size of the angle marked x.
Give your answer correct to 1 decimal place.

.....°

(Total for Question 85 is 2 marks)

EXPERT TUITION

86 Triangles *ABD* and *BCD* are right-angled triangles.



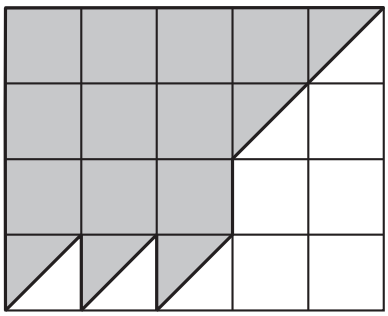
Work out the value of x.
Give your answer correct to 2 decimal places.

.....

(Total for Question 86 is 4 marks)

EXPERT TUITION

87 What percentage of this shape is shaded?



..... %

(Total for Question 87 is 3 marks)

88 The length of a car is 3.6 metres.

Karl makes a scale model of the car.
He uses a scale of 1 cm to 30 cm.

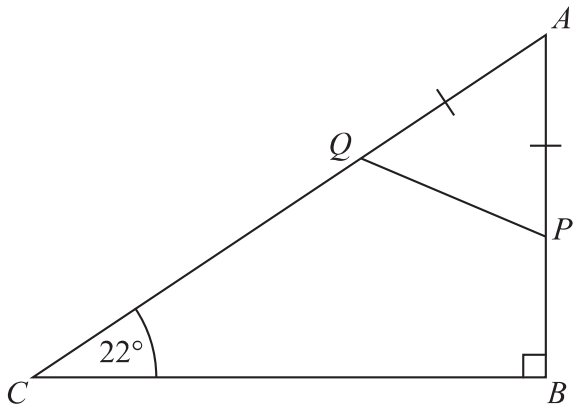
Work out the length of the scale model of the car.
Give your answer in centimetres.

..... cm

(Total for Question 88 is 2 marks)

EXPERT TUITION

89 ABC is a right-angled triangle.



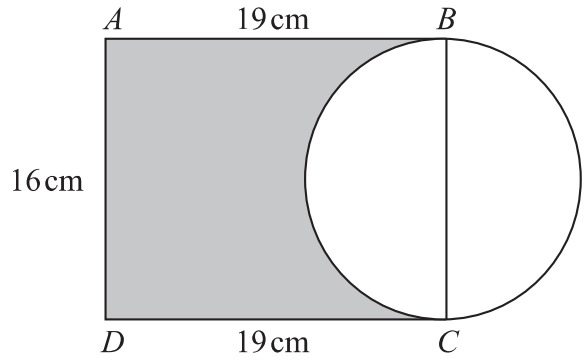
P is a point on AB.
Q is a point on AC.
$AP = AQ$.

Work out the size of angle AQP.
You must give a reason for each stage of your working.

(Total for Question 89 is 4 marks)

EXPERT TUITION

90 Here is a diagram showing a rectangle, *ABCD*, and a circle.



BC is a diameter of the circle.

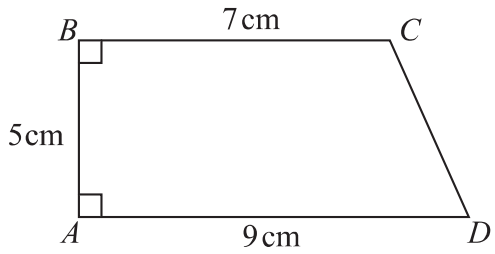
Calculate the percentage of the area of the rectangle that is shaded.
Give your answer correct to 1 decimal place.

.....%

(Total for Question 90 is 4 marks)

EXPERT TUITION

91 *ABCD* is a trapezium.



A square has the same perimeter as this trapezium.

Work out the area of the square.
Give your answer correct to 3 significant figures.

..... cm^2

(Total for Question 91 is 5 marks)

EXPERT TUITION

92 The smallest angle of a triangle is 25°
The triangle is enlarged by scale factor 3

Ben says,

"The smallest angle of the enlarged triangle is 75° because 25 × 3 = 75"

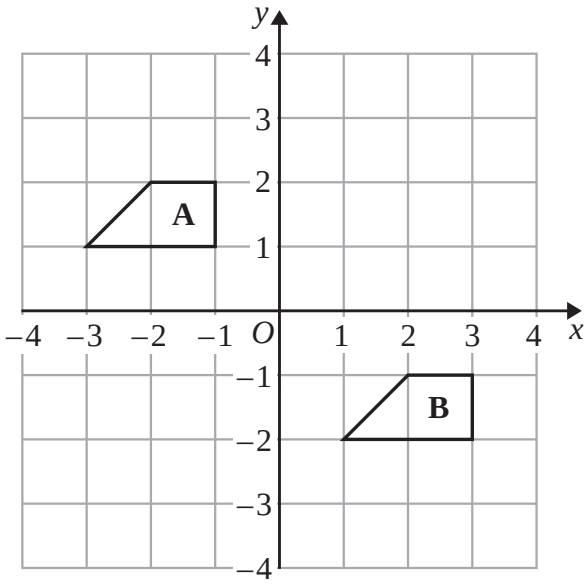
Is Ben right?
Explain your answer.

.....

.....

(Total for Question 92 is 1 mark)

93



Describe the single transformation that maps shape **A** onto shape **B**.

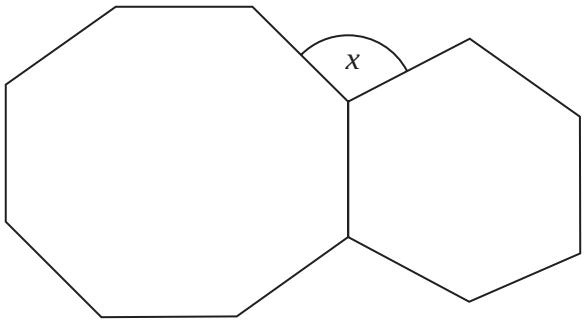
.....

.....

(Total for Question 93 is 2 marks)

EXPERT TUITION

94



The diagram shows a regular octagon and a regular hexagon.

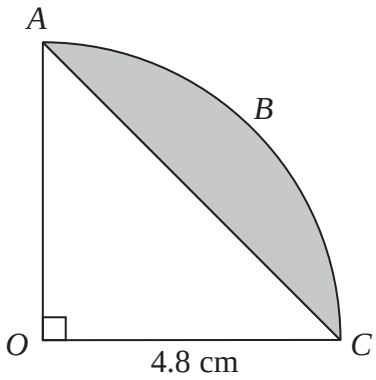
Find the size of the angle marked x
You must show all your working.

$x =$ ..... °

(Total for Question 94 is 3 marks)

EXPERT TUITION

95



The arc *ABC* is a quarter of a circle with centre *O* and radius 4.8 cm.
AC is a chord of the circle.

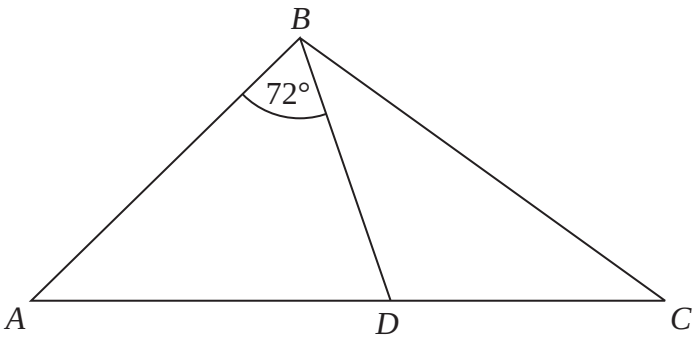
Work out the area of the shaded segment.
Give your answer correct to 3 significant figures.

..... cm^2

(Total for Question 95 is 3 marks)

EXPERT TUITION

96



ABC is an isosceles triangle with *BA* = *BC*.

D lies on *AC*.
ABD is an isosceles triangle with *AB* = *AD*.

Angle *ABD* = 72°

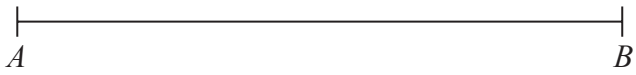
Show that the triangle *BCD* is isosceles.
You must give a reason for each stage of your working.

(Total for Question 96 is 5 marks)

EXPERT TUITION

97 AB is a straight line.

Mark with a cross (×) the midpoint of AB.



(Total for Question 97 is 1 mark)

98 Jenna measures all the angles around a point.

Her results are 23°, 145°, 23° and 69°

Explain why these results cannot be true.

.....

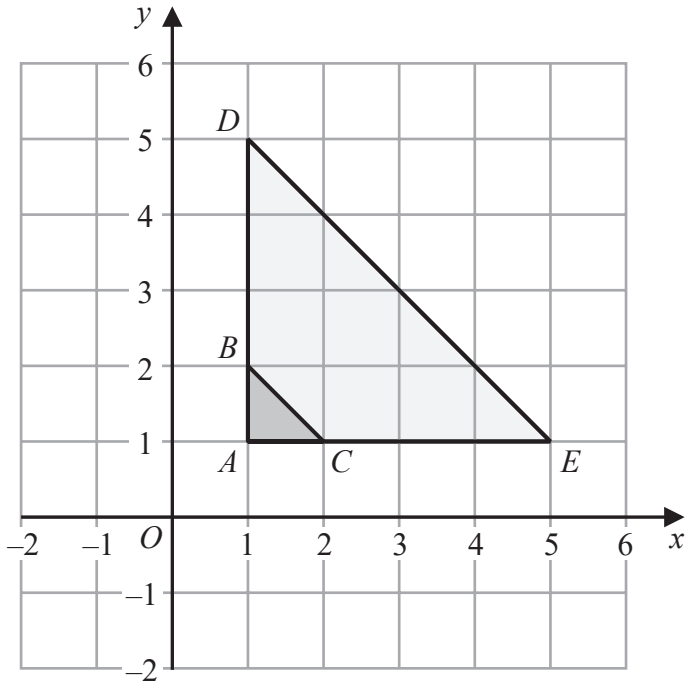
.....

.....

(Total for Question 98 is 1 mark)

EXPERT TUITION

99 Here is a diagram showing triangle *ABC* and triangle *ADE*.



Describe fully the single transformation that maps triangle *ABC* onto triangle *ADE*.

.....

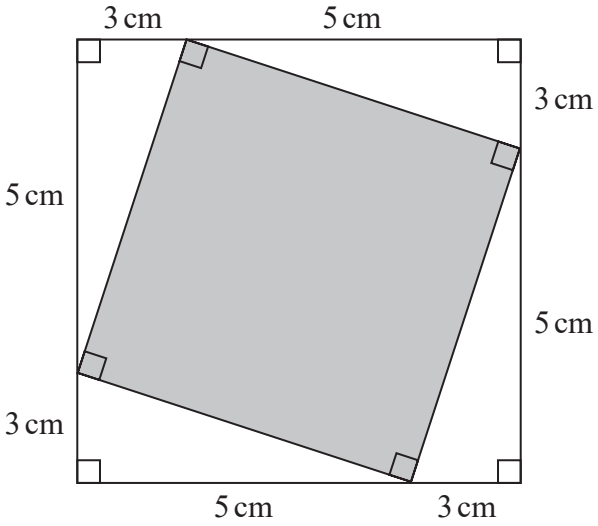
.....

.....

(Total for Question 99 is 2 marks)

EXPERT TUITION

100 This diagram shows two squares.



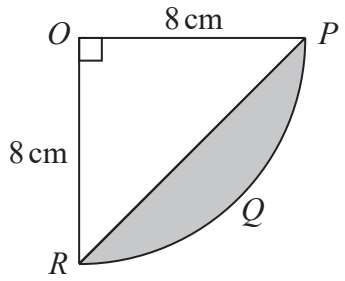
Work out the area of the square shown shaded in the diagram.

.....

(Total for Question 100 is 4 marks)

EXPERT TUITION

101 The diagram shows a sector $OPQR$ of a circle, centre O and radius 8 cm.



OPR is a triangle.

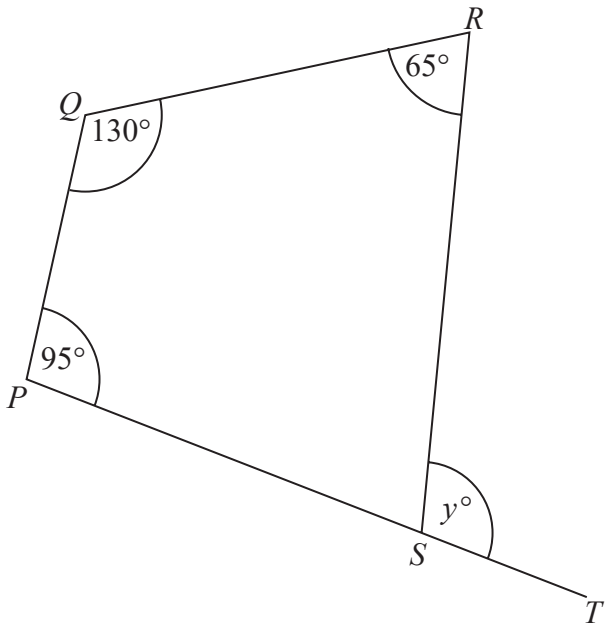
Work out the area of the shaded segment PQR.
Give your answer correct to 3 significant figures.

..... cm^2

(Total for Question 101 is 4 marks)

EXPERT TUITION

102 *PQRS* is a quadrilateral.
PST is a straight line.



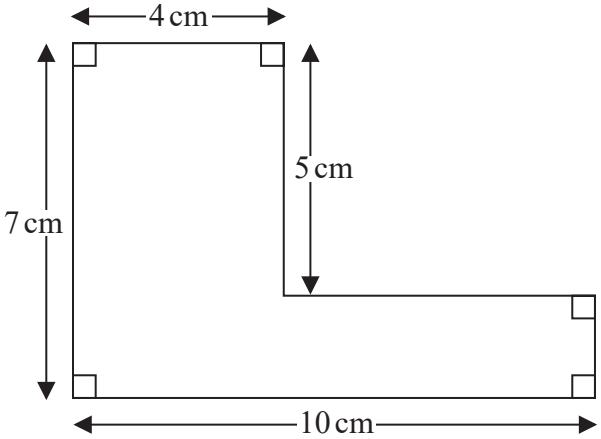
Find the value of y.

$y =$ .....

(Total for Question 102 is 3 marks)

EXPERT TUITION

103



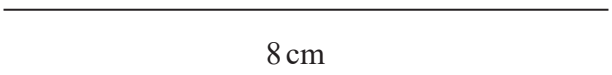
Work out the perimeter of this shape.

..... cm

(Total for Question 103 is 2 marks)

EXPERT TUITION

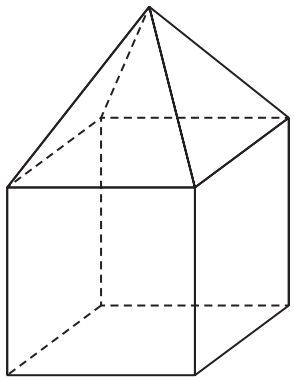
104 Draw accurately an isosceles triangle with sides of length 8 cm, 6 cm and 6 cm.
One side of the triangle has been drawn for you.



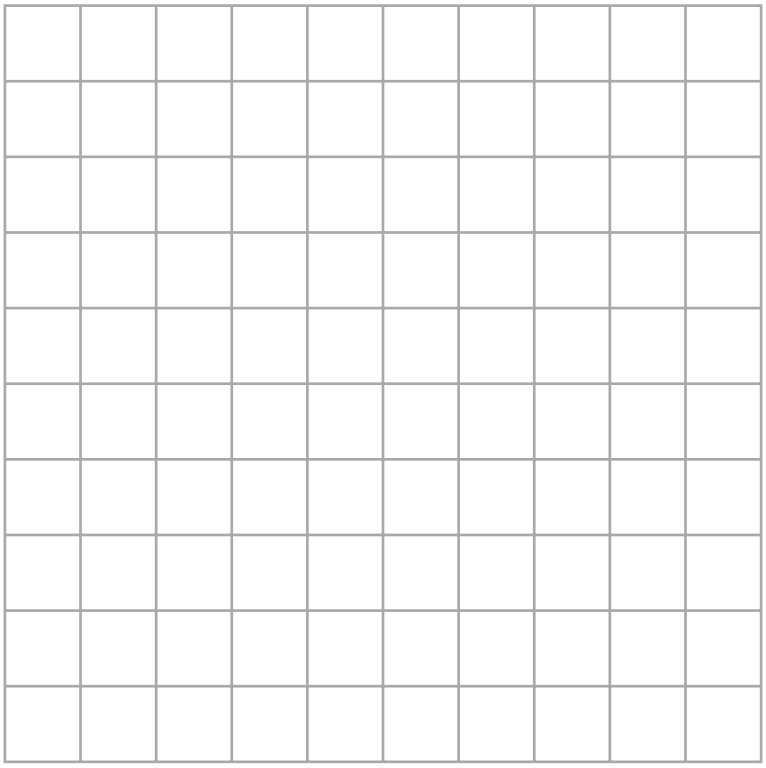
8 cm

(Total for Question 104 is 2 marks)

105 Here is a solid made from a square-based pyramid and a cube.
Each edge of the solid has length 6 cm.



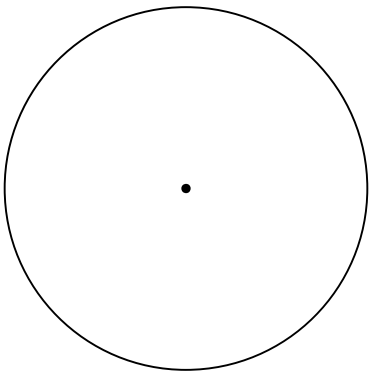
On the centimetre grid, draw the plan of this solid.



(Total for Question 105 is 2 marks)

EXPERT TUITION

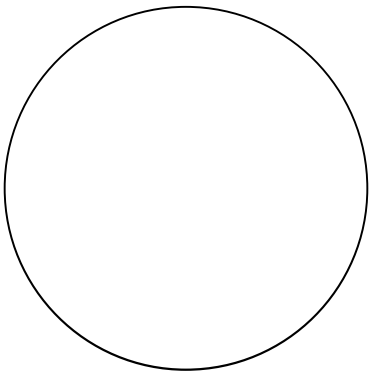
106



(a) On the diagram above, draw a diameter of the circle.

(1)

(b) On the diagram below, draw a segment of the circle.
Shade the segment.



(1)

(Total for Question 106 is 2 marks)

EXPERT TUITION

107 Here is a rectangle.

Coby has to find the perimeter of this rectangle.

He writes,

Perimeter = 7×3

(a) What mistake has Coby made?

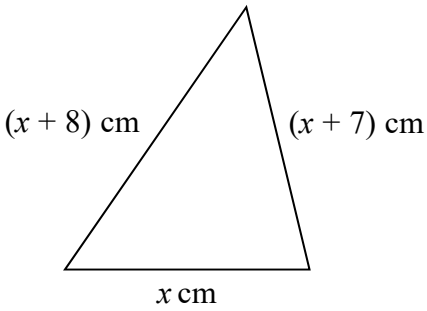
.....

.....

.....

(1)

Here is a triangle.



Iram solves a problem about this triangle to find the value of x.

Her answer is

$x = -2$

(b) Explain why Iram's answer must be wrong.

.....

.....

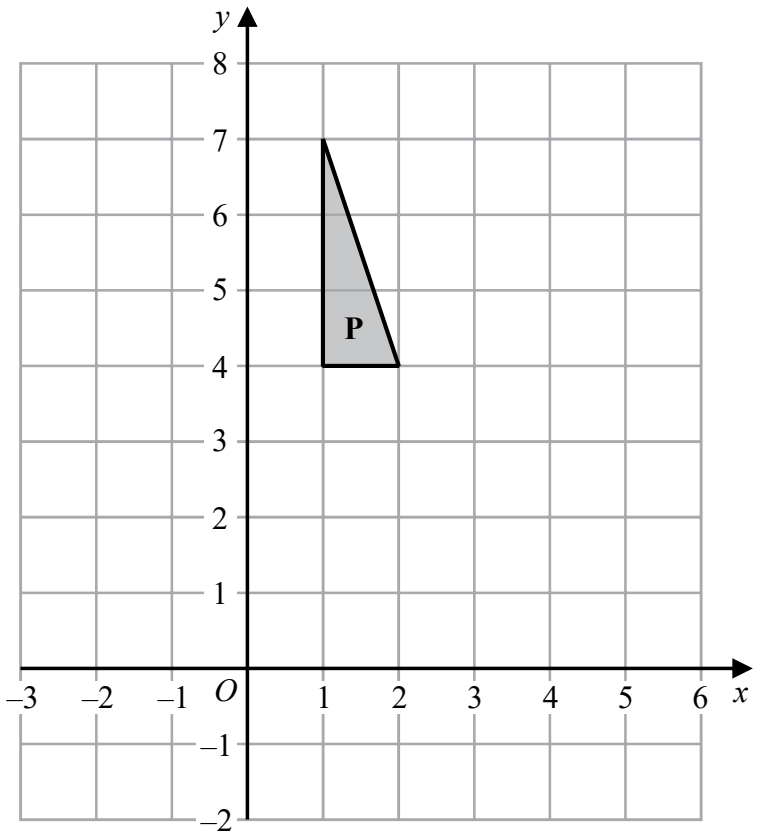
.....

(1)

(Total for Question 107 is 2 marks)

EXPERT TUITION

108

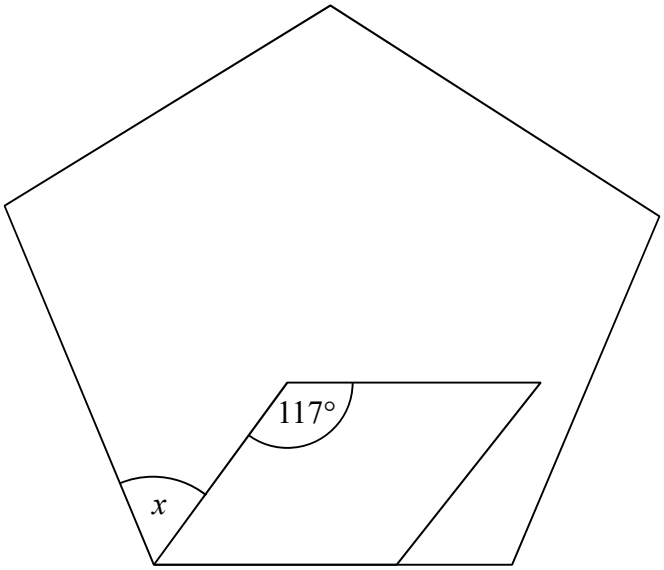


Reflect shape **P** in the line $y = 3$

(Total for Question 108 is 2 marks)

EXPERT TUITION

109 The diagram shows a regular pentagon and a parallelogram.



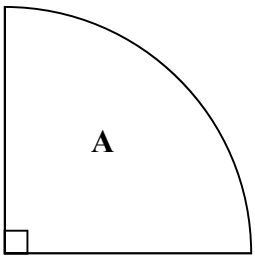
Work out the size of the angle marked x.
You must show all your working.

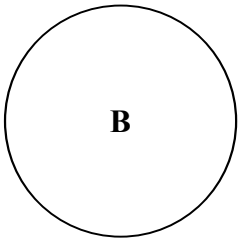
.....°

(Total for Question 109 is 4 marks)

EXPERT TUITION

110 **A** is in the shape of a quarter circle of radius 15 cm.
B is in the shape of a circle.





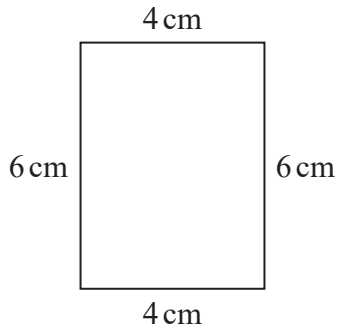
The area of **A** is 9 times the area of **B**.

Show that the radius of **B** is 2.5 cm.

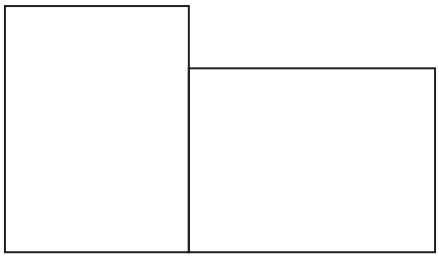
(Total for Question 110 is 3 marks)

EXPERT TUITION

111 Here is a rectangle.



The 6-sided shape below is made from two of these rectangles.



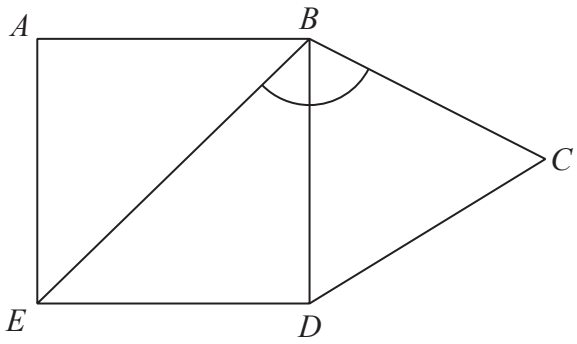
Work out the perimeter of this 6-sided shape.

..... cm

(Total for Question 111 is 3 marks)

EXPERT TUITION

112 The diagram shows a square *ABDE* and an equilateral triangle *BCD*.



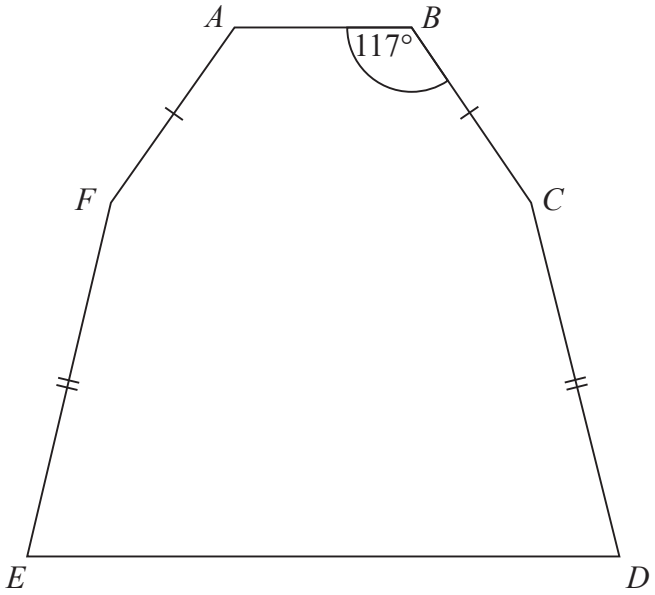
Work out the size of angle *EBC*.

.....°

(Total for Question 112 is 2 marks)

EXPERT TUITION

113 The diagram shows a hexagon.
The hexagon has one line of symmetry.



$FA = BC$
$EF = CD$
Angle $ABC = 117°$

Angle $BCD = 2 \times$ angle CDE

Work out the size of angle AFE.
You must show all your working.

.....°

(Total for Question 113 is 4 marks)

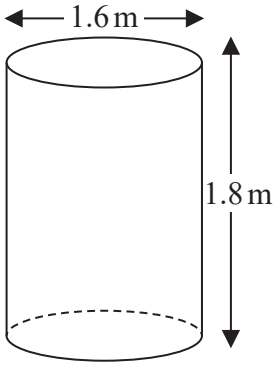
EXPERT TUITION

114 Jeremy has to cover 3 tanks completely with paint.

Each tank is in the shape of a cylinder with a top and a bottom.
The tank has a diameter of 1.6 m and a height of 1.8 m.

Jeremy has 7 tins of paint.
Each tin of paint covers 5 m^2

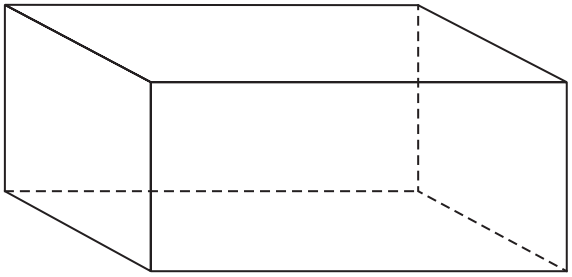
Has Jeremy got enough paint to cover completely the 3 tanks?
You must show how you get your answer.



(Total for Question 114 is 5 marks)

EXPERT TUITION

115 Here is a 3-D shape.



(a) Write down the name of this 3-D shape.

.....

(1)

(b) Write down the number of edges of this 3-D shape.

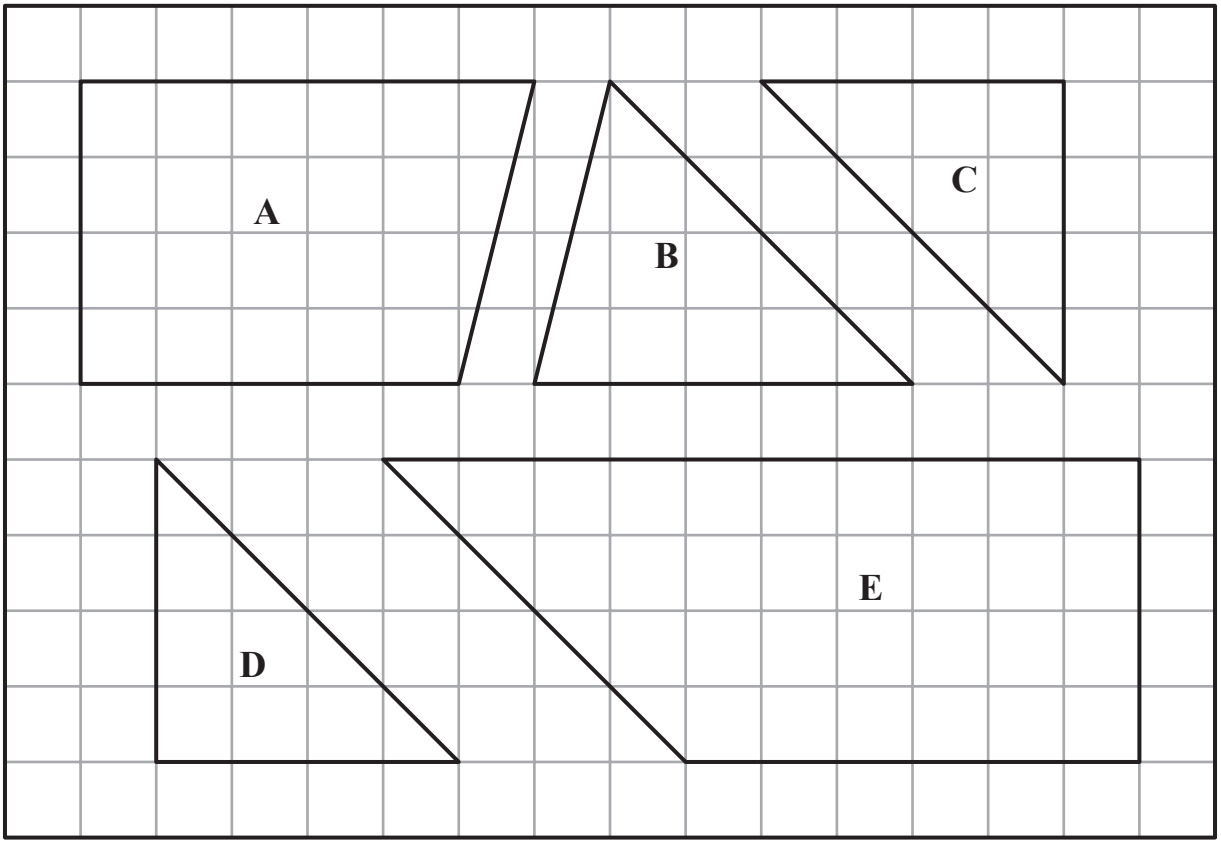
.....

(1)

(Total for Question 115 is 2 marks)

EXPERT TUITION

116 The diagram shows five shapes on a centimetre grid.



(a) Write down the name of shape **E**.

.....

(1)

Two of the shapes are congruent.

(b) Write down the letters of these two shapes.

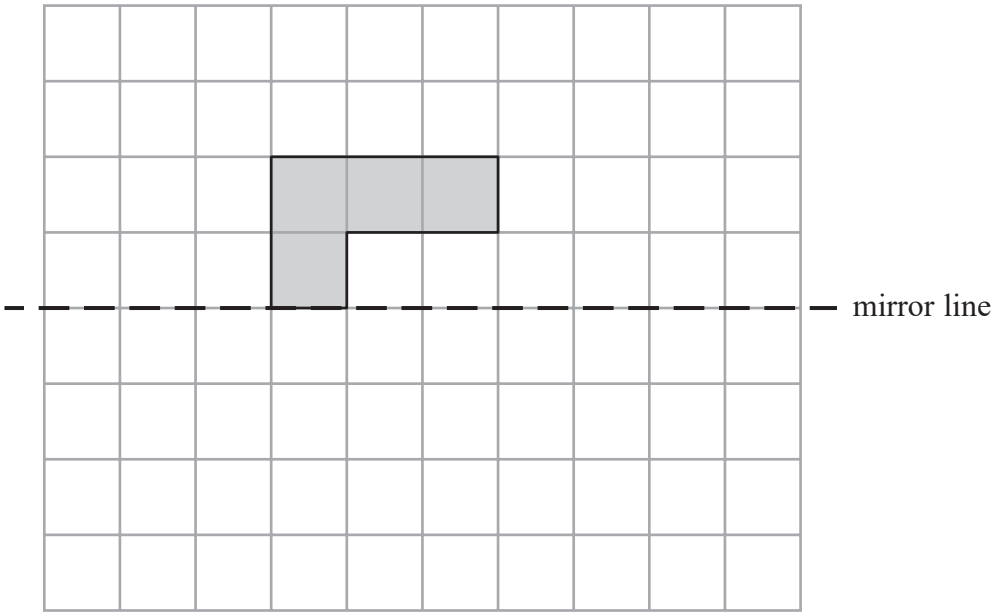
..... and .....

(1)

(Total for Question 116 is 2 marks)

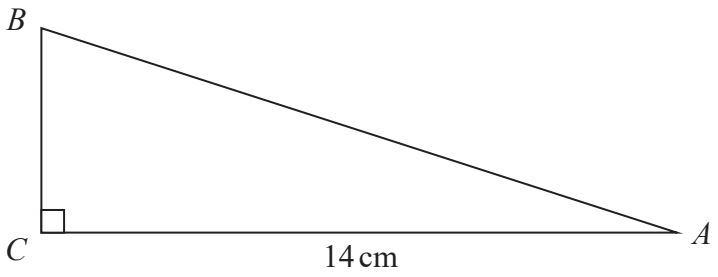
EXPERT TUITION

117 On the grid, reflect the shaded shape in the mirror line.



(Total for Question 117 is 1 mark)

118 ABC is a right-angled triangle.



$AC = 14$ cm.
Angle $C = 90°$

size of angle B : size of angle $A = 3 : 2$

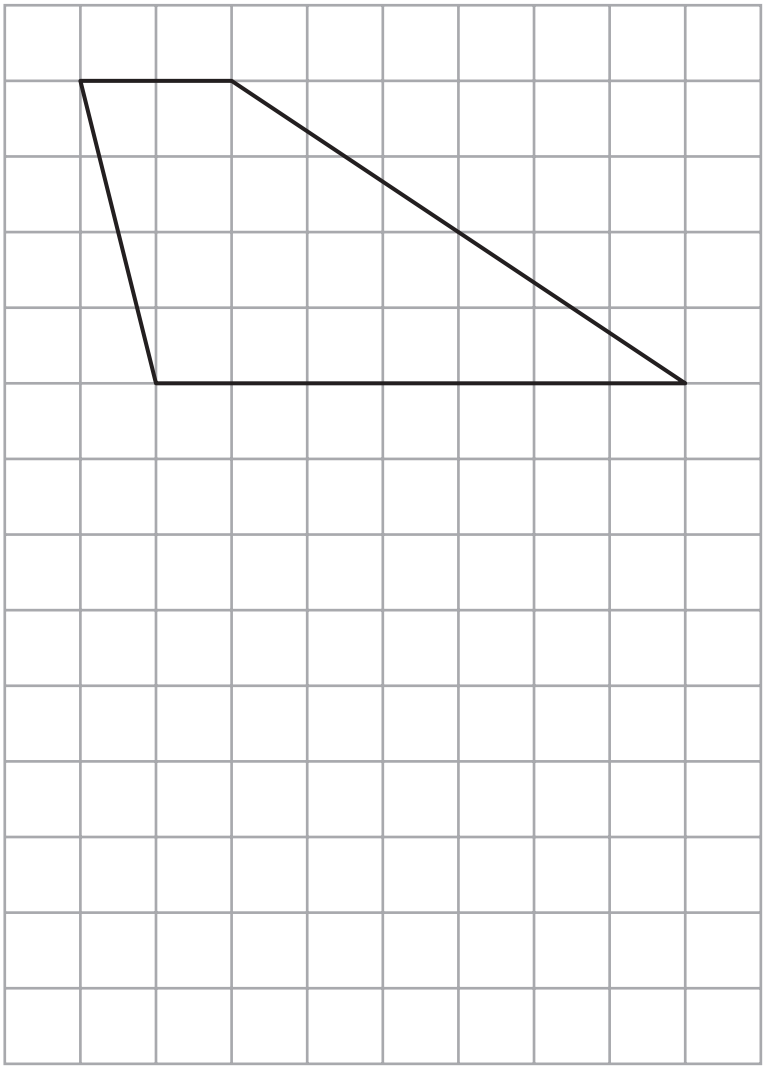
Work out the length of AB.
Give your answer correct to 3 significant figures.

.....cm

(Total for Question 118 is 4 marks)

EXPERT TUITION

119 Here is a trapezium drawn on a centimetre grid.

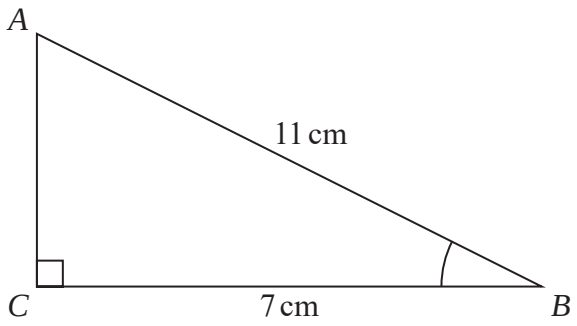


On the grid, draw a triangle equal in area to this trapezium.

(Total for Question 119 is 2 marks)

EXPERT TUITION

120 *ABC* is a right-angled triangle.



(a) Work out the size of angle *ABC*.
Give your answer correct to 1 decimal place.

.....°

(2)

The length of the side *AB* is reduced by 1 cm.

The length of the side *BC* is still 7 cm.
Angle *ACB* is still 90°

(b) Will the value of cos *ABC* increase or decrease?
You must give a reason for your answer.

.....

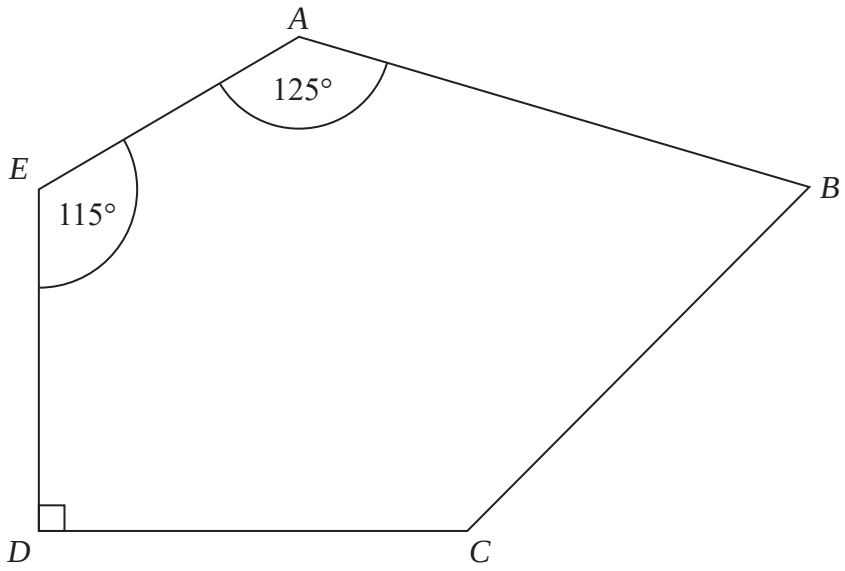
.....

(1)

(Total for Question 120 is 3 marks)

EXPERT TUITION

121 *ABCDE* is a pentagon.



Angle *BCD* = 2 × angle *ABC*

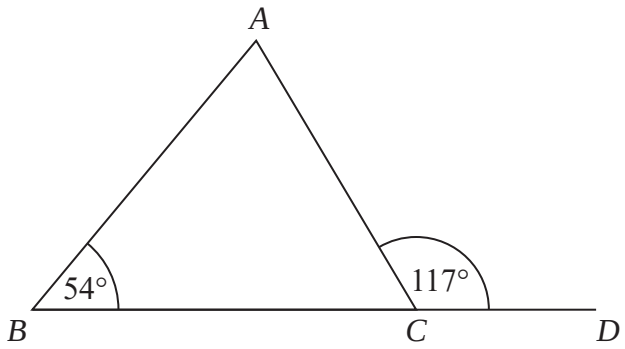
Work out the size of angle *BCD*.
You must show all your working.

.....°

(Total for Question 121 is 5 marks)

EXPERT TUITION

122



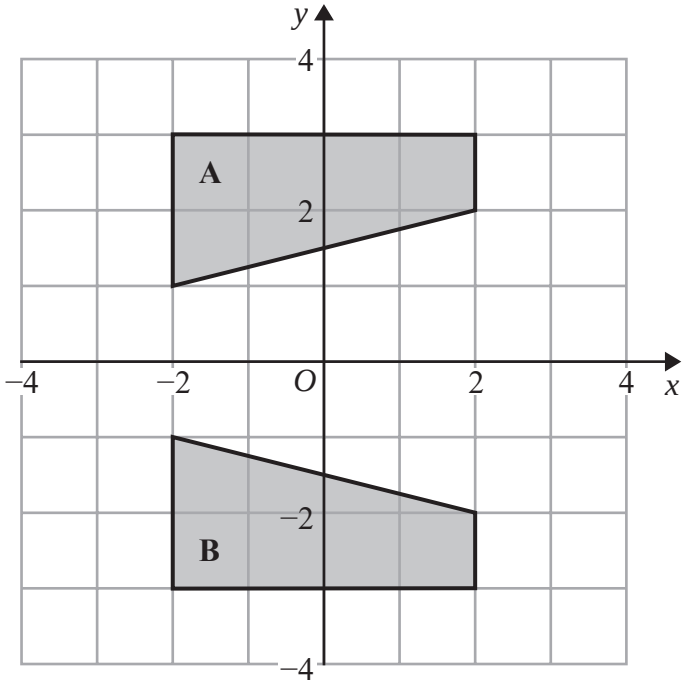
BCD is a straight line.
ABC is a triangle.

Show that triangle *ABC* is an isosceles triangle.
Give a reason for each stage of your working.

(Total for Question 122 is 4 marks)

EXPERT TUITION

123



Describe fully the single transformation that maps shape **A** onto shape **B**.

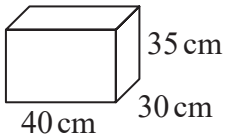
.....

(Total for Question 123 is 2 marks)

EXPERT TUITION

124 Chloe has a van.

She is going to use the van to deliver boxes.
Each box is a cuboid, 40 cm by 30 cm by 35 cm.



The space for boxes in the van has

maximum length	2.4 m
maximum width	1.5 m
maximum height	1.4 m

The space for boxes is empty.
Chloe wants to put as many boxes as possible into the van.

She can put 3 boxes into the van in one minute.
Assume that the space for boxes is in the shape of a cuboid.

(a) Work out how many minutes it should take Chloe to put as many boxes as possible into the van.

..... minutes

(4)

The space for boxes might **not** be in the shape of a cuboid.

(b) Explain how this could affect the time it would take Chloe to put as many boxes as possible into the van.

.....

.....

(1)

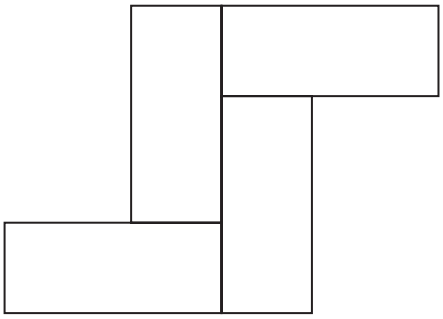
(Total for Question 124 is 5 marks)

EXPERT TUITION

125 Here is a rectangle.

The length of the rectangle is 7 cm longer than the width of the rectangle.

4 of these rectangles are used to make this 8-sided shape.



The perimeter of the 8-sided shape is 70 cm.

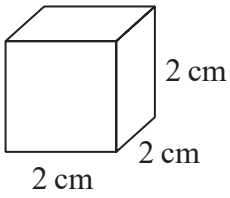
Work out the area of the 8-sided shape.

..... cm^2

(Total for Question 125 is 5 marks)

EXPERT TUITION

126 The diagram shows a cube of side length 2 cm.



Vera says,

"The volume of any solid made with 6 of these cubes is 48 cm^3"

(a) Is Vera correct?
You must show your working.

.....

.....

(2)

(b) (i) Draw a cuboid that can be made with 6 of these cubes.
Write the dimensions of the cuboid on your diagram.

(1)

(ii) Work out the surface area of your cuboid.

..... cm^2

(2)

(Total for Question 126 is 5 marks)

EXPERT TUITION

127 The size of the largest angle in a triangle is 4 times the size of the smallest angle.
The other angle is 27° less than the largest angle.

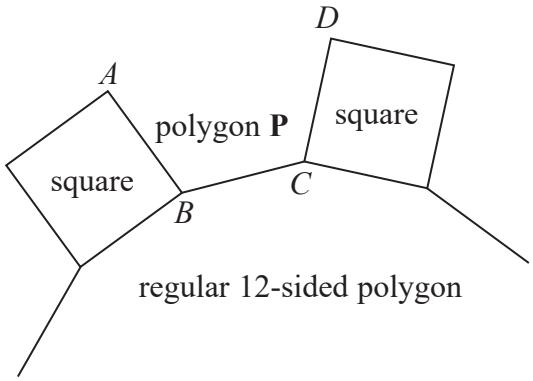
Work out, in degrees, the size of each angle in the triangle.
You must show your working.

..... °, ... °, ... °

(Total for Question 127 is 5 marks)

EXPERT TUITION

128 In the diagram, AB, BC and CD are three sides of a regular polygon **P**.

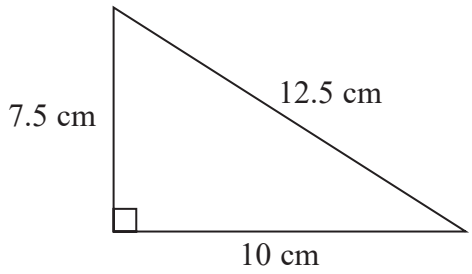


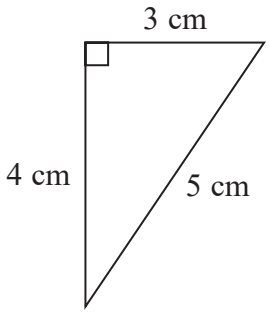
Show that polygon **P** is a hexagon.
You must show your working.

(Total for Question 128 is 4 marks)

EXPERT TUITION

129

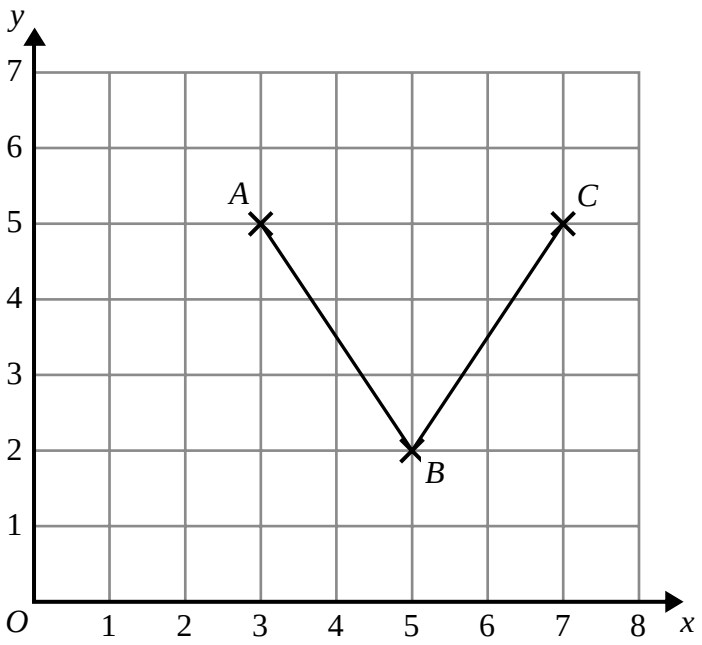




Show that these two triangles are mathematically similar.

(Total for Question 129 is 2 marks)

130 Here is a grid showing the points *A*, *B* and *C*.



(a) Write down the coordinates of the point *A*.

.....

(1)

(b) On the grid, mark with a cross (×) the point (1, 2).
Label this point *D*.

(1)

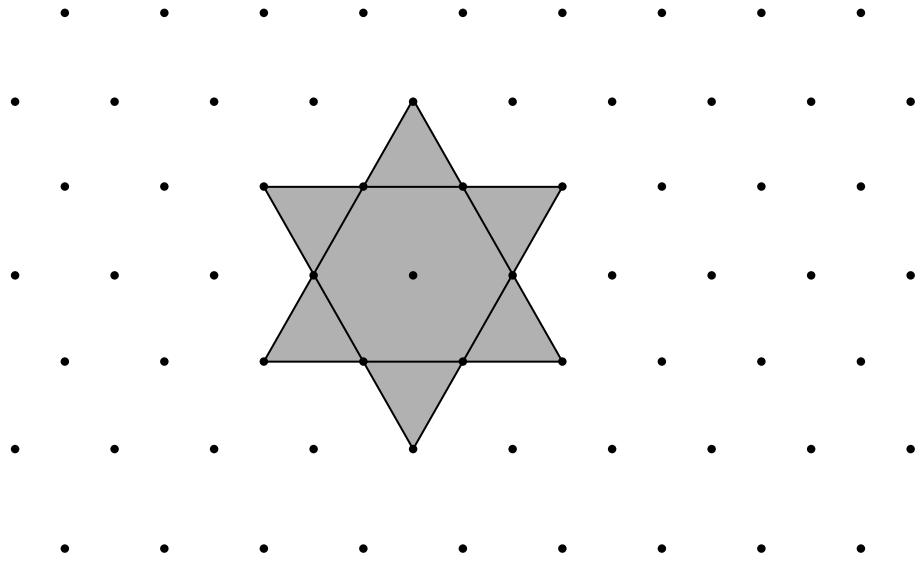
(c) On the grid, mark with a cross (×) a point *E*, so that the quadrilateral *ABCE* is a kite.

(1)

(Total for Question 130 is 3 marks)

EXPERT TUITION

131 Here is a star shape.



The star shape is made from a regular hexagon and six congruent equilateral triangles.

The area of the star shape is 96 cm^2.

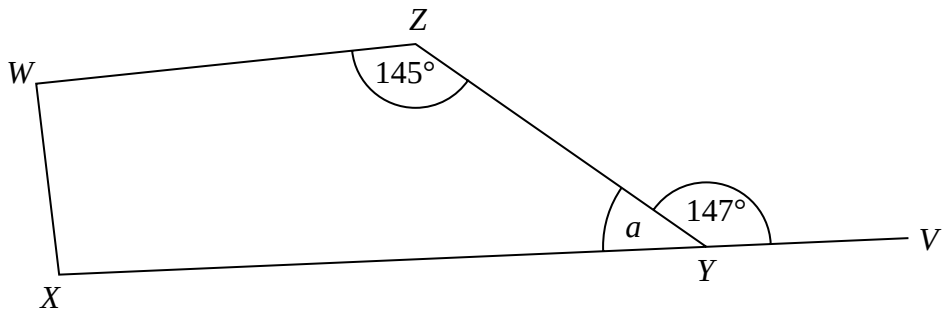
Work out the area of the regular hexagon.

..... cm^2

(Total for Question 131 is 2 marks)

EXPERT TUITION

132



WXYZ is a quadrilateral.
XYV is a straight line.

(a) (i) Find the size of the angle marked *a*.

.....°

(ii) Give a reason for your answer.

.....

(2)

Angle *ZWX* = angle *WXY*

(b) Work out the size of angle *ZWX*.

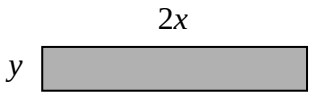
.....°

(2)

(Total for Question 132 is 4 marks)

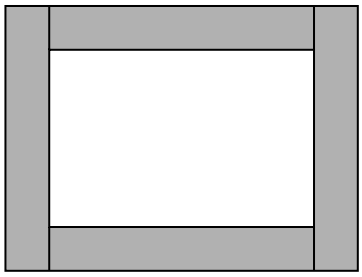
EXPERT TUITION

133 Here is a rectangle made of card.



The measurements in the diagram are in centimetres.

Lily fits four of these rectangles together to make a frame.



The perimeter of the inside of the frame is P cm.

(a) Show that $P = 8x - 4y$

(2)

Magda says,

"When x and y are whole numbers, P is always a multiple of 4."

(b) Is Magda correct?
You must give a reason for your answer.

.....

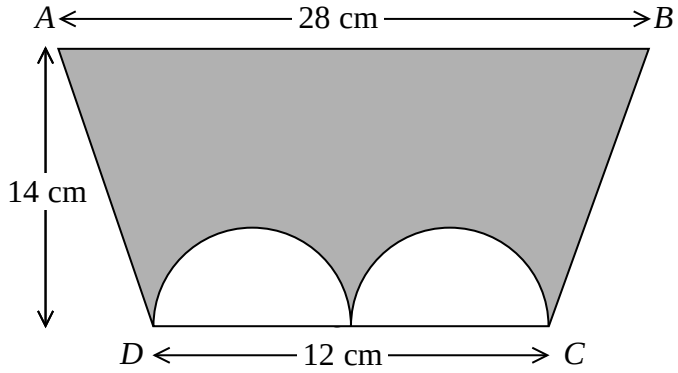
.....

(2)

(Total for Question 133 is 4 marks)

EXPERT TUITION

134 The diagram shows a trapezium *ABCD* and two identical semicircles.



The centre of each semicircle is on *DC*.

Work out the area of the shaded region.
Give your answer correct to 3 significant figures.

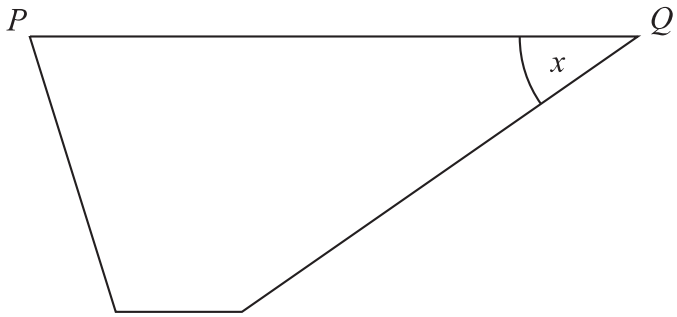
..... cm^2

(Total for Question 134 is 4 marks)

EXPERT TUITION

135 Here is a trapezium.

This diagram is accurately drawn.



(a) Measure the length of the line PQ.

.....cm

(1)

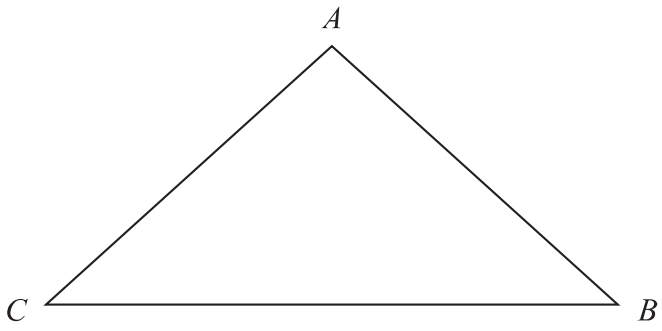
(b) Measure the size of the angle marked x.

.....°

(1)

(Total for Question 135 is 2 marks)

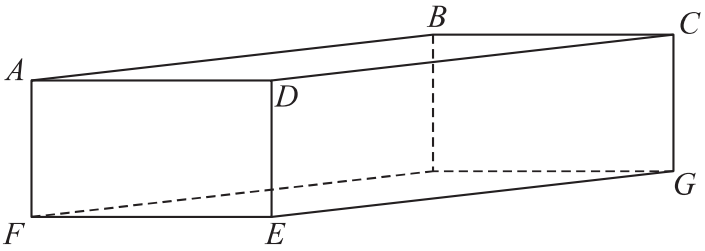
136 Here is a triangle *ABC*.



(a) Mark, with the letter *y*, the angle *CBA*.

(1)

Here is a cuboid.



Some of the vertices are labelled.

(b) Shade in the face *CDEG*.

(1)

(c) How many edges has a cuboid?

.....

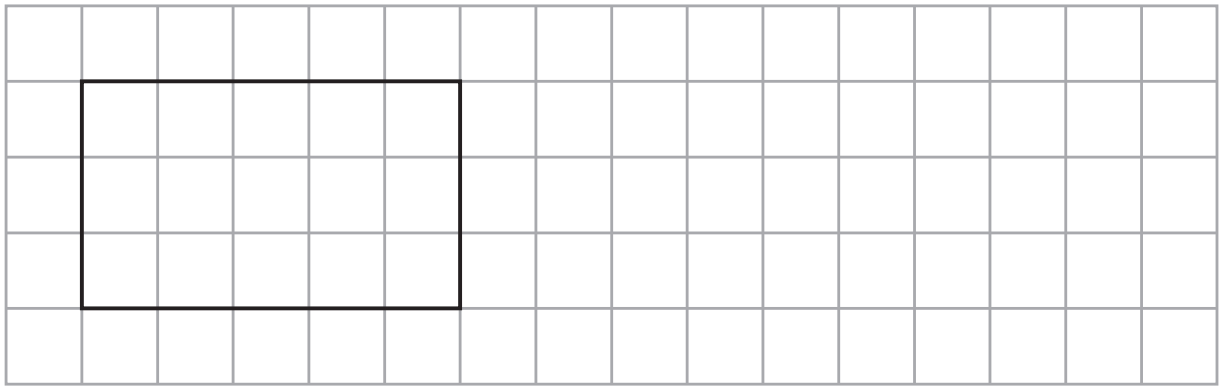
(1)

(Total for Question 136 is 3 marks)

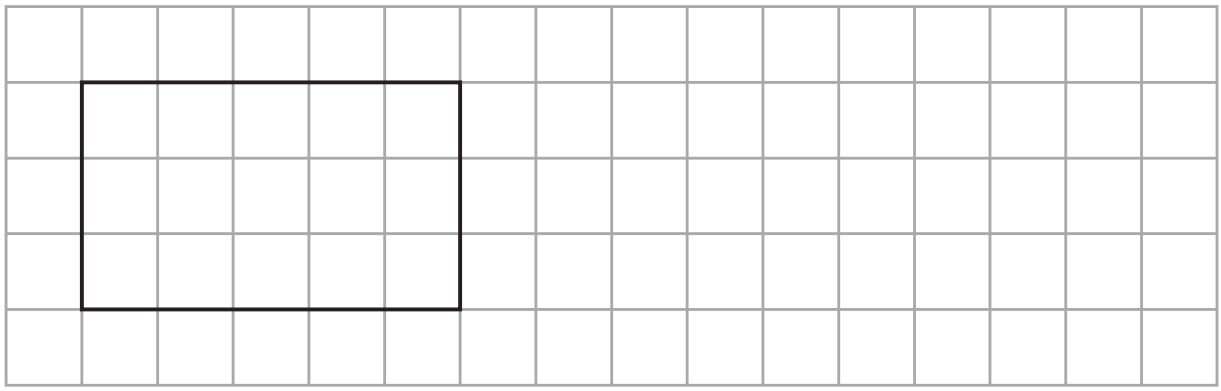
EXPERT TUITION

137 Give an example to show that when a piece is cut off a rectangle the perimeter of the new shape

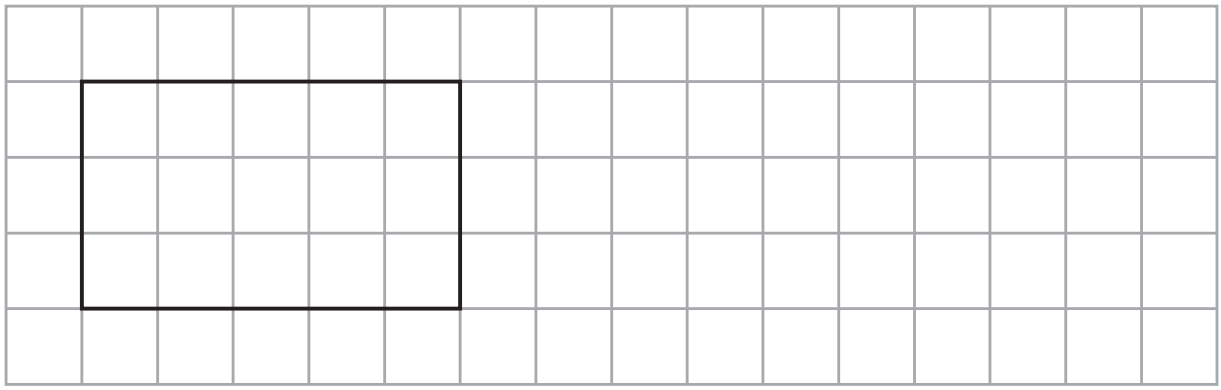
(i) is less than the perimeter of the rectangle,



(ii) is the same as the perimeter of the rectangle,



(iii) is greater than the perimeter of the rectangle.



(Total for Question 137 is 3 marks)

EXPERT TUITION

138 *ABC* is an isosceles triangle.
When angle $A = 70°$, there are 3 possible sizes of angle *B*.

(a) What are they?

..... °, ... °, ... °

(3)

When angle $A = 120°$, there is only one possible size of angle *B*.

(b) Explain why.

.....

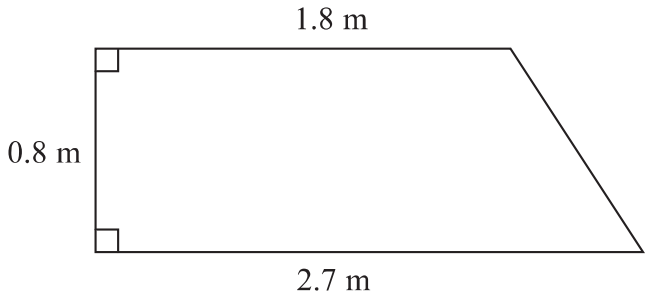
.....

(1)

(Total for Question 138 is 4 marks)

EXPERT TUITION

139 The diagram shows part of a wall in the shape of a trapezium.



Karen is going to cover this part of the wall with tiles.
Each rectangular tile is 15 cm by 7.5 cm

Tiles are sold in packs.
There are 9 tiles in each pack.

Karen divides the area of the wall by the area of a tile to work out an estimate for the number of tiles she needs to buy.

(a) Use Karen's method to work out an estimate for the number of packs of tiles she needs to buy.

.....

(5)

EXPERT TUITION

Karen is advised to buy 10% more tiles than she estimated.
Buying 10% more tiles will affect the number of the tiles Karen needs to buy.

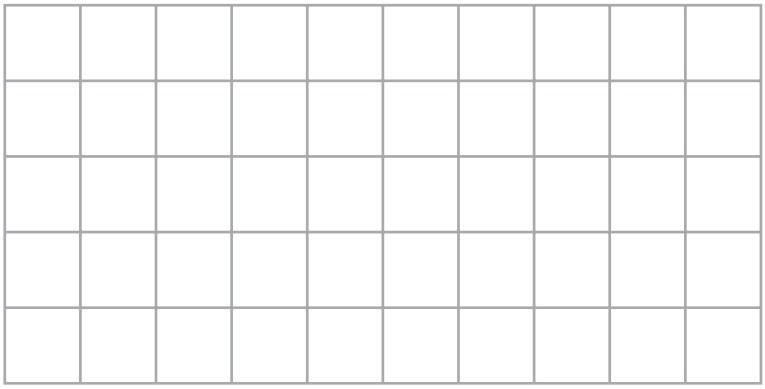
She assumes she will need to buy 10% more packs of tiles.

(b) Is Karen's assumption correct?
You must show your working.

(2)

(Total for Question 139 is 7 marks)

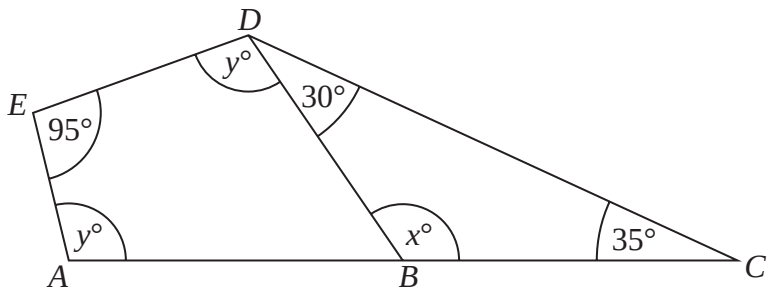
140 On the grid, draw a parallelogram.



(Total for Question 140 is 1 mark)

EXPERT TUITION

141



ABC is a straight line.
BCD is a triangle.
ABDE is a quadrilateral.

(a) (i) Work out the value of x.

.....

(ii) Give a reason for your answer.

.....

.....

(2)

(b) Work out the value of y.

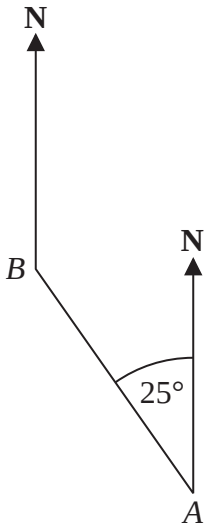
.....

(2)

(Total for Question 141 is 4 marks)

EXPERT TUITION

142 The diagram shows the positions of two churches, *A* and *B*.



Amber says,

"The bearing of church *B* from church *A* is 025°"

Amber is wrong.
Explain why.

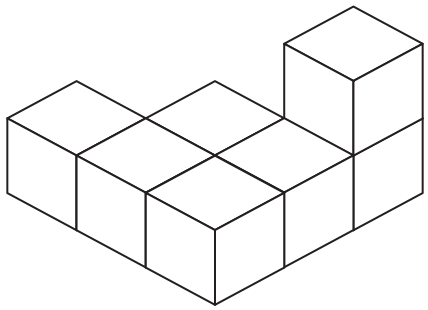
.....

.....

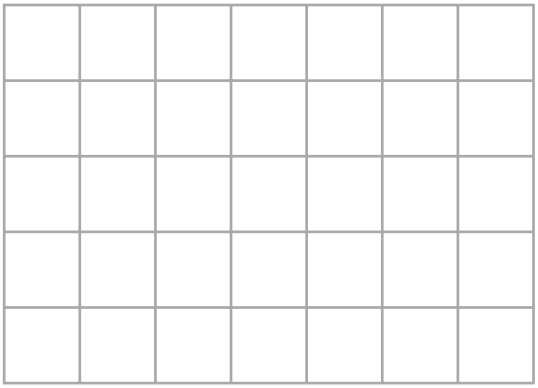
(Total for Question 142 is 1 mark)

EXPERT TUITION

143 The diagram represents a solid made from seven centimetre cubes.



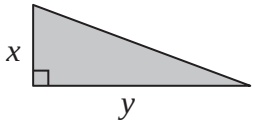
On the centimetre grid below, draw a plan of the solid.



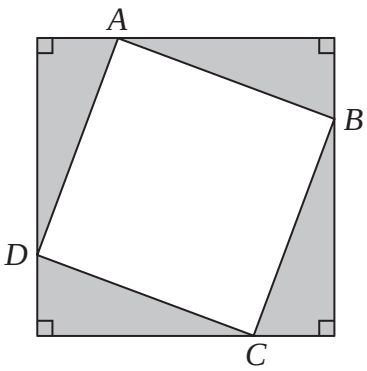
(Total for Question 143 is 2 marks)

EXPERT TUITION

144 Here is a right-angled triangle.



Four of these triangles are joined to enclose the square *ABCD* as shown below.

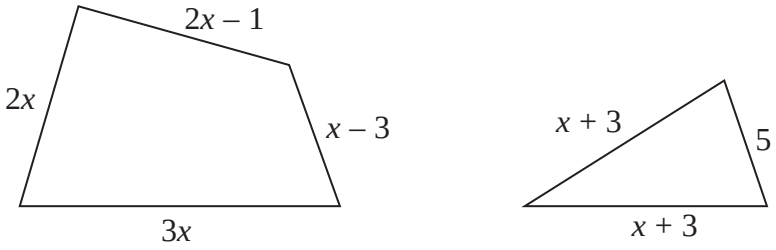


Show that the area of the square *ABCD* is $x^2 + y^2$

(Total for Question 144 is 3 marks)

EXPERT TUITION

145



In the diagram all measurements are in centimetres.

The perimeter of the quadrilateral is twice the perimeter of the triangle.

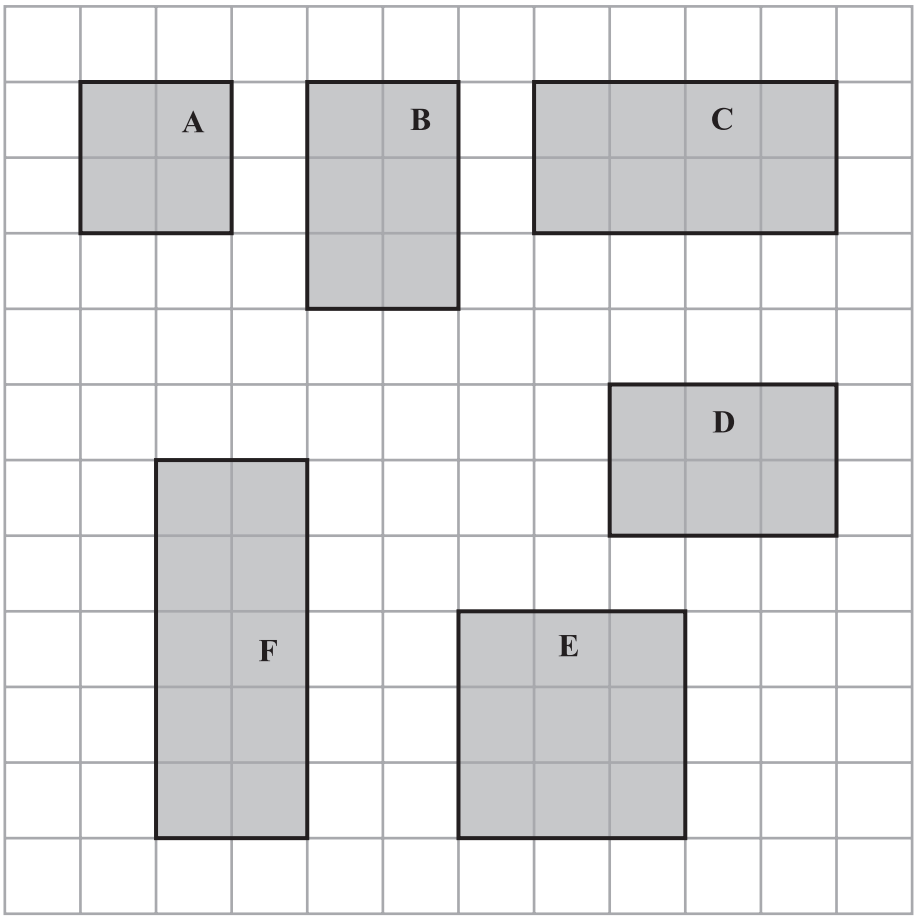
Work out the perimeter of the quadrilateral.

..... cm

(Total for Question 145 is 4 marks)

EXPERT TUITION

146 Here are six shapes drawn on a centimetre grid.



Two of the shapes are congruent.

(a) Write down the letters of these two shapes.

..... and .....

(1)

One of the shapes is similar to shape **A**.

(b) Write down the letter of this shape.

.....

(1)

(c) Find the area of shape **F**.

..... cm^2

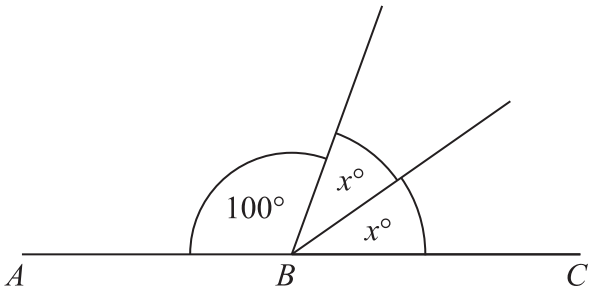
(1)

(Total for Question 146 is 3 marks)

EXPERT TUITION

147

Diagram **NOT** accurately drawn



ABC is a straight line.

(a) Work out the value of *x*.

x = ...

(2)

Here is a sketch of a triangle *PQR*.

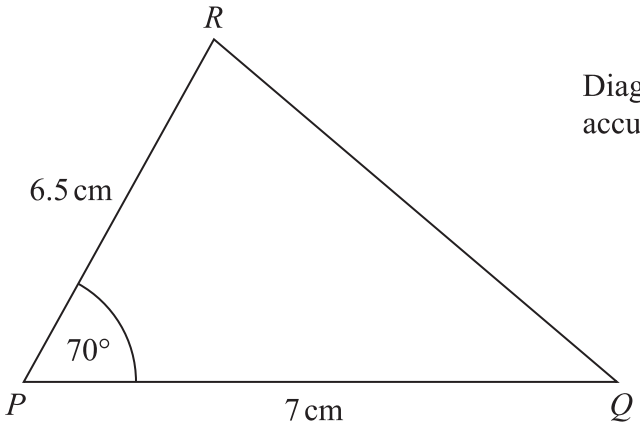


Diagram **NOT** accurately drawn

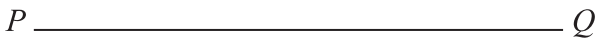
(b) What type of angle is the angle *QPR*?

.....

(1)

EXPERT TUITION

(c) In the space below, make an accurate drawing of triangle PQR.
The line PQ has been drawn for you.

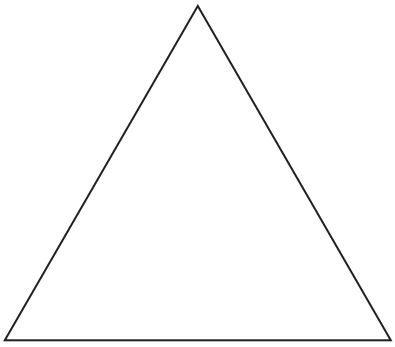


(2)

(Total for Question 147 is 5 marks)

EXPERT TUITION

148 Here is an equilateral triangle.



(a) On the triangle, draw all the lines of symmetry.

(2)

The diagram shows a square and its diagonals.

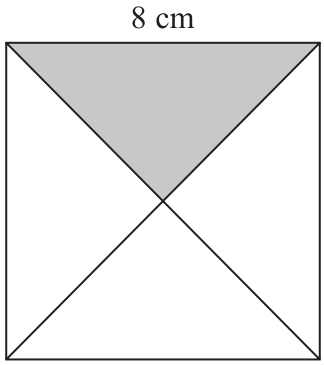


Diagram **NOT** accurately drawn

The square has sides of length 8 cm.

(b) Work out the area of the shaded triangle.

.....cm^2

(3)

(Total for Question 148 is 5 marks)

EXPERT TUITION

***149** *ABC* is an isosceles triangle.

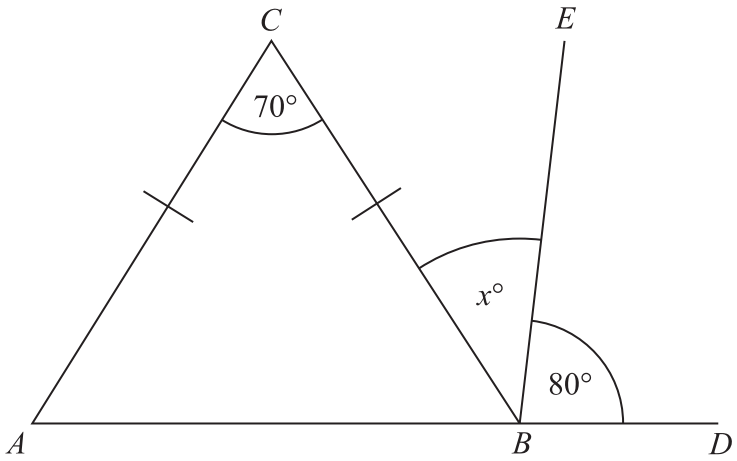


Diagram **NOT** accurately drawn

AC = *BC*
ABD is a straight line.

Angle *ACB* = 70°
Angle *EBD* = 80°

Angle *CBE* = *x*°

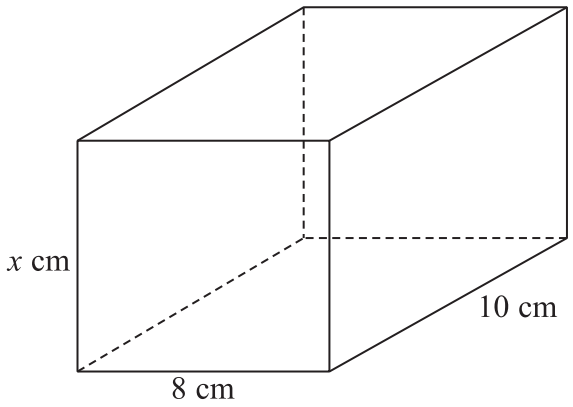
Work out the value of *x*.
Give reasons for your answer.

(Total for Question 149 is 4 marks)

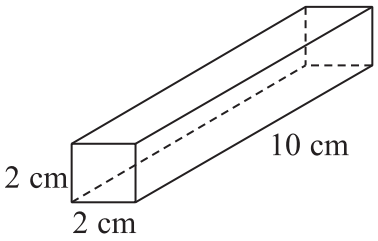
EXPERT TUITION

150 Josef puts wooden blocks into boxes.

Diagram **NOT** accurately drawn



Box



Block

Each box is a cuboid x cm by 8 cm by 10 cm.
Each block is a cuboid 2 cm by 2 cm by 10 cm.

24 blocks completely fill a box.

Work out the value of x.

$x =$ .....

(Total for Question 150 is 4 marks)

EXPERT TUITION

151 Frances grows plants in a container.
Each of the 5 faces of the container is made of glass.

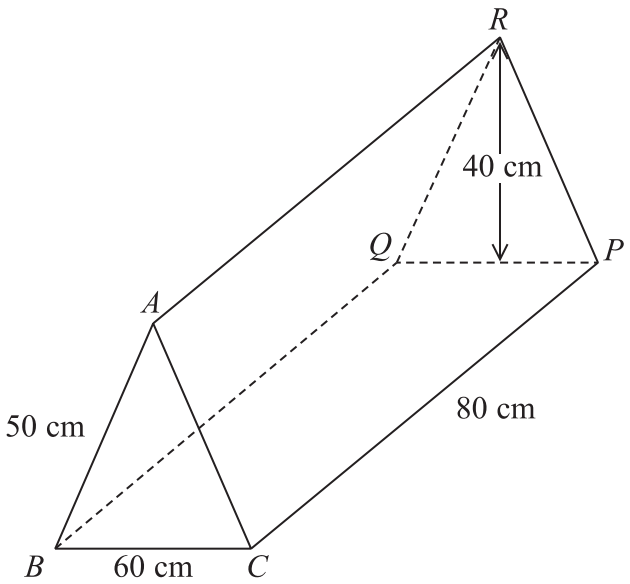


Diagram **NOT** accurately drawn

The container is in the shape of a prism.
The cross section of the prism is an isosceles triangle with height 40 cm.

$BC = 60$ cm
$AB = AC = 50$ cm
$CP = 80$ cm

Work out the total area of glass needed to make the container.

.....cm^2

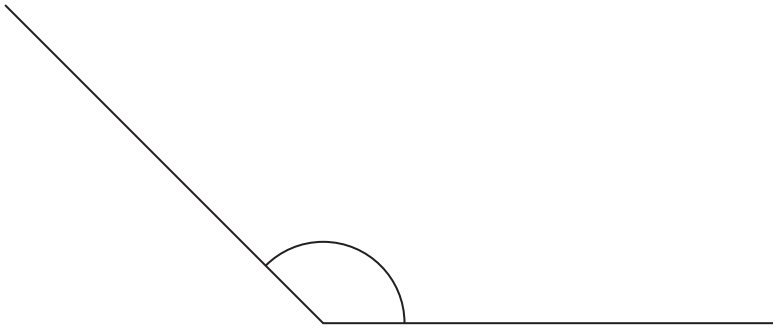
(Total for Question 151 is 3 marks)

EXPERT TUITION

152 (a) Measure the length of the line AB.
Give your answer in centimetres.

..... cm
(1)

An angle is marked in this diagram.



(b) Write down the special name for this type of angle.

.....
(1)

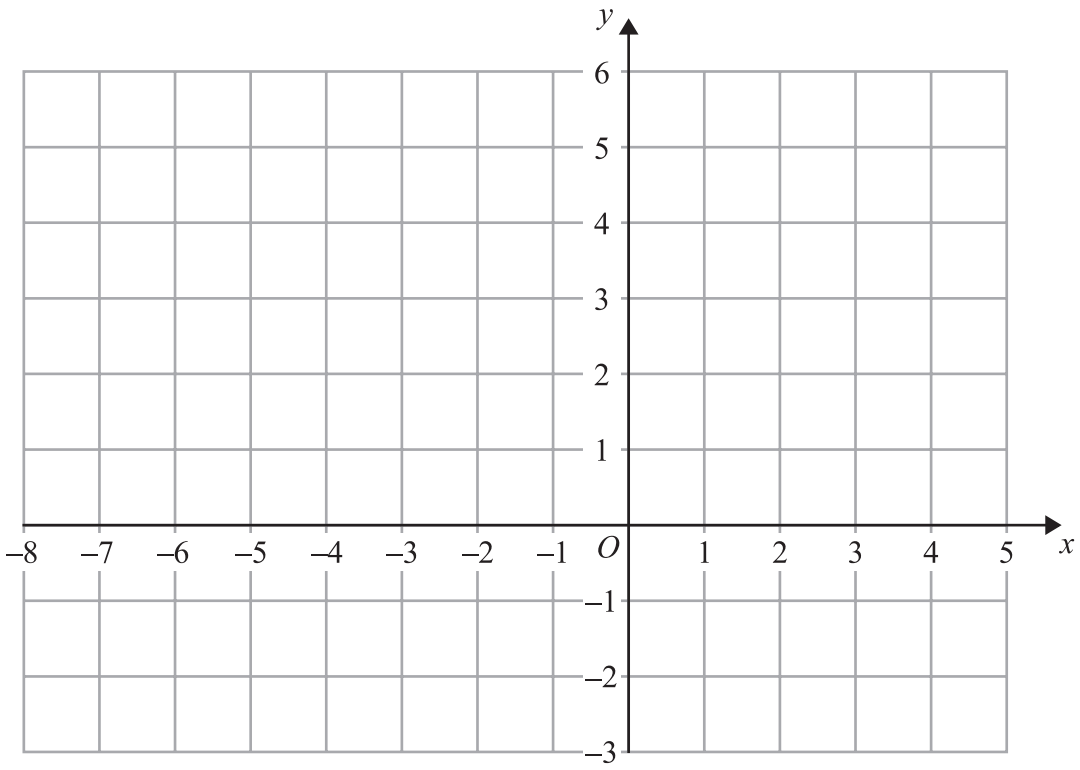
(c) Measure the size of the angle.

..... °
(1)

(Total for Question 152 is 3 marks)

EXPERT TUITION

153



The points (–3, –1), (–2, 2) and (3, 2) are three vertices of a parallelogram.

Find the coordinates of the fourth vertex of the parallelogram.

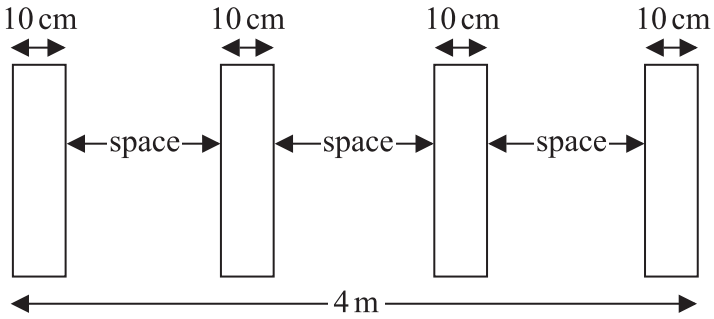
(..... , ...)

(Total for Question 153 is 3 marks)

EXPERT TUITION

***154** Brian is making a fence.

Diagram **NOT** accurately drawn



The fence will be 4 m long.

Brian uses four posts.
Each post has a width of 10 cm.

Brian wants to have spaces of equal width between the posts.

Work out the width of each space.
You must show your working.

(Total for Question 154 is 4 marks)

EXPERT TUITION

155

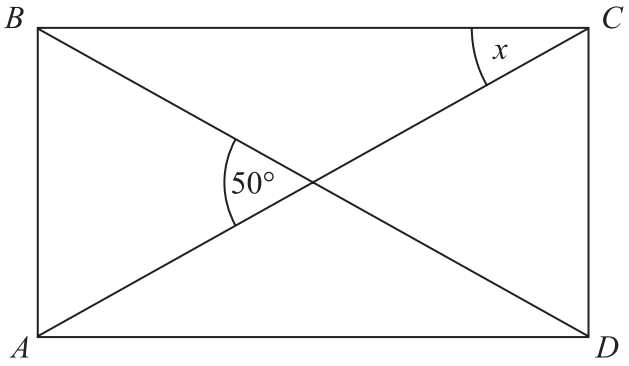


Diagram **NOT** accurately drawn

ABCD is a rectangle.
AC and *BD* are straight lines.
The angle between *AC* and *BD* is 50º.

Work out the size of the angle marked *x*.

.....°

(Total for Question 155 is 3 marks)

EXPERT TUITION

156 The diagram shows a path around a pond.

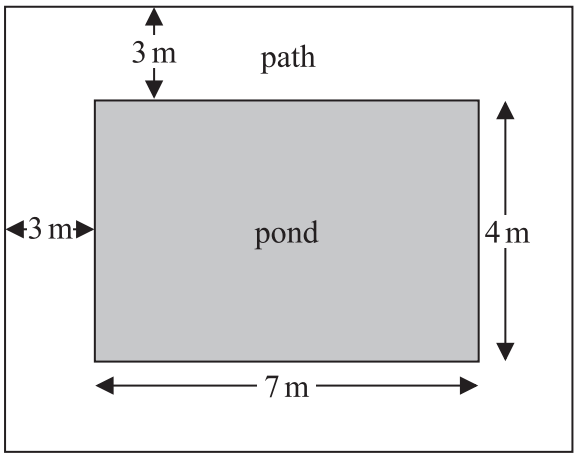


Diagram **NOT** accurately drawn

The pond is in the shape of a rectangle with length 7 m and width 4 m.
The path is 3 m wide.

Ali is going to cover the path with gravel.
One bag of gravel will cover 10 m^2 of the path.

How many bags of gravel does Ali need to buy?
You must show your working.

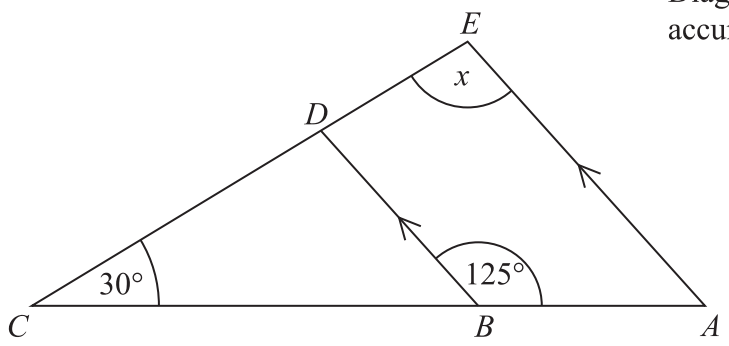
..... bags

(Total for Question 156 is 4 marks)

EXPERT TUITION

*** 157**

Diagram **NOT** accurately drawn



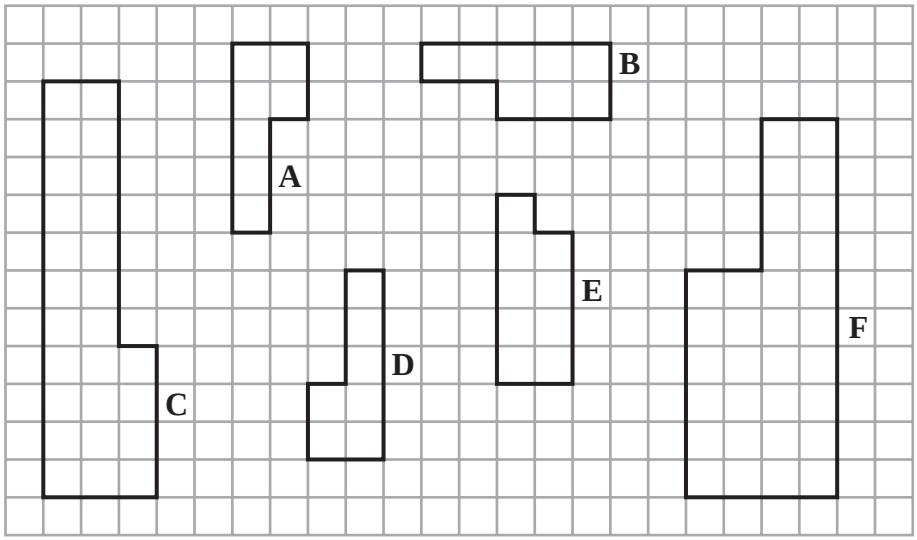
ABC and *EDC* are straight lines.
AE and *BD* are parallel.
Angle *ABD* = 125°
Angle *BCD* = 30°

Work out the size of the angle marked *x*.
Give reasons for your answer.

(Total for Question 157 is 4 marks)

EXPERT TUITION

158 Six shapes are drawn on the grid of squares.



Two of the shapes are congruent.

(a) Write down the letters of these two shapes.

..... and .....

(1)

One of the shapes is similar to shape **F**.

(b) Write down the letter of this shape.

.....

(1)

(Total for Question 158 is 2 marks)

EXPERT TUITION

159 Here is a quadrilateral.

(a) Write down the mathematical name of this quadrilateral.

.....

(1)

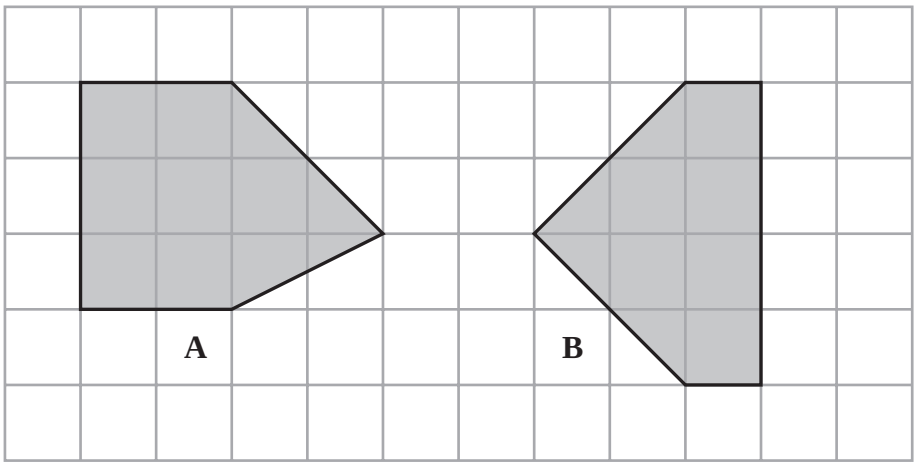
(b) In the space below, sketch a cuboid.

(1)

(Total for Question 159 is 2 marks)

EXPERT TUITION

*160 Shape **A** and shape **B** are drawn on a centimetre grid.

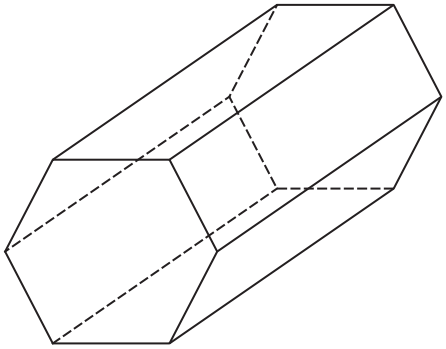


One shape has a greater area than the other.
How much greater?

(Total for Question 160 is 3 marks)

EXPERT TUITION

161 The diagram shows a prism.



(a) (i) Write down how many vertices the prism has.

.....

(ii) Write down how many faces the prism has.

.....

(2)

The cross section of the prism is a regular hexagon.

(b) In the space below, sketch a net of the prism.

(2)

EXPERT TUITION

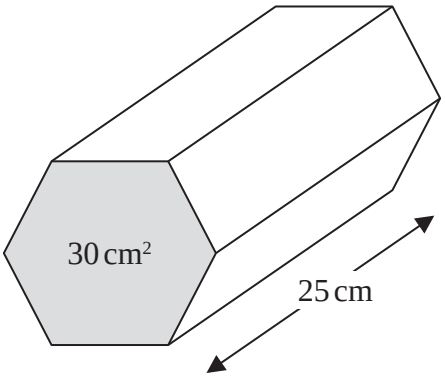


Diagram **NOT** accurately drawn

The area of the cross section of the prism is 30 cm^2.
The length of the prism is 25 cm.

(c) Work out the volume of the prism.

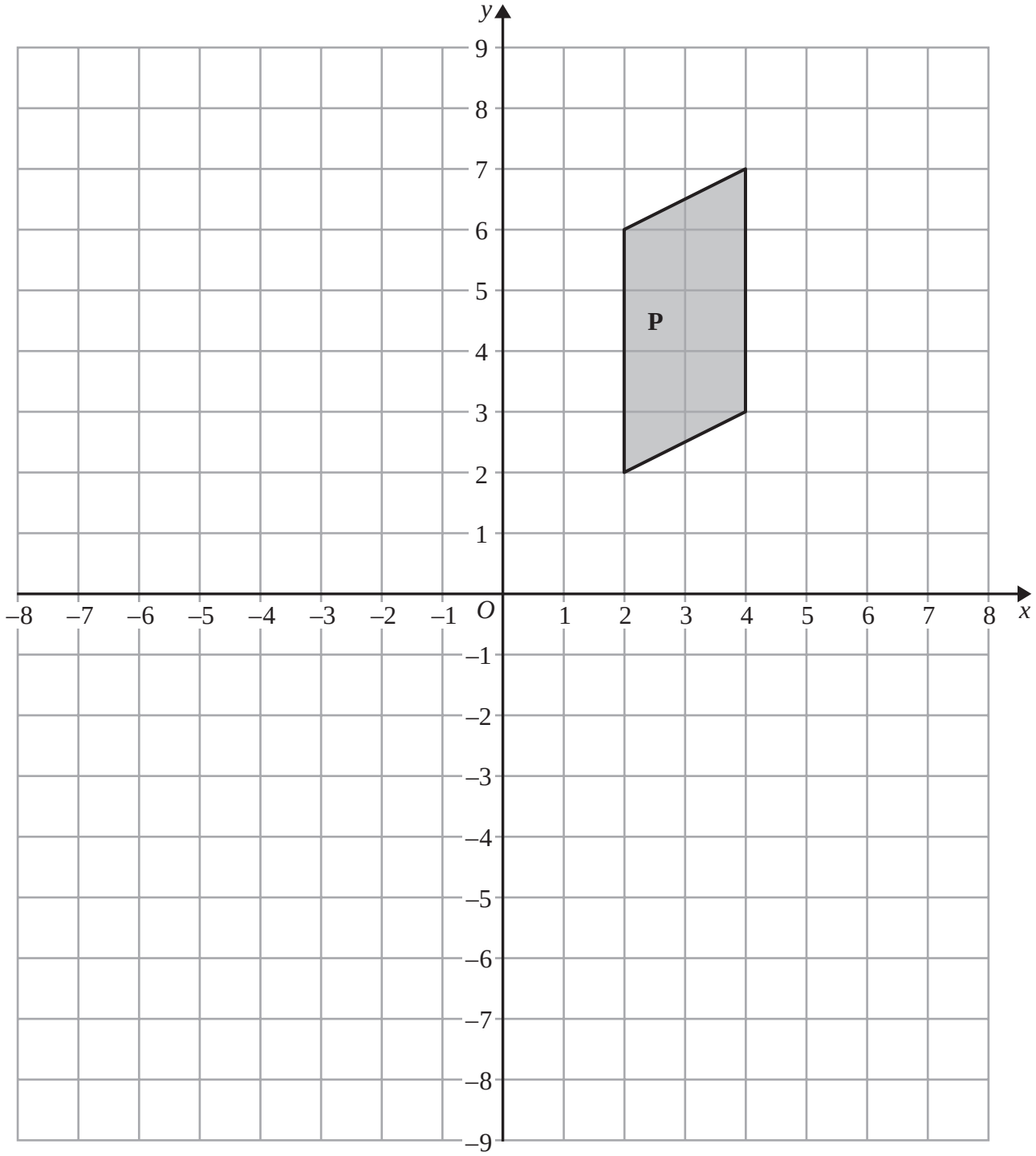
.....

(3)

(Total for Question 161 is 7 marks)

EXPERT TUITION

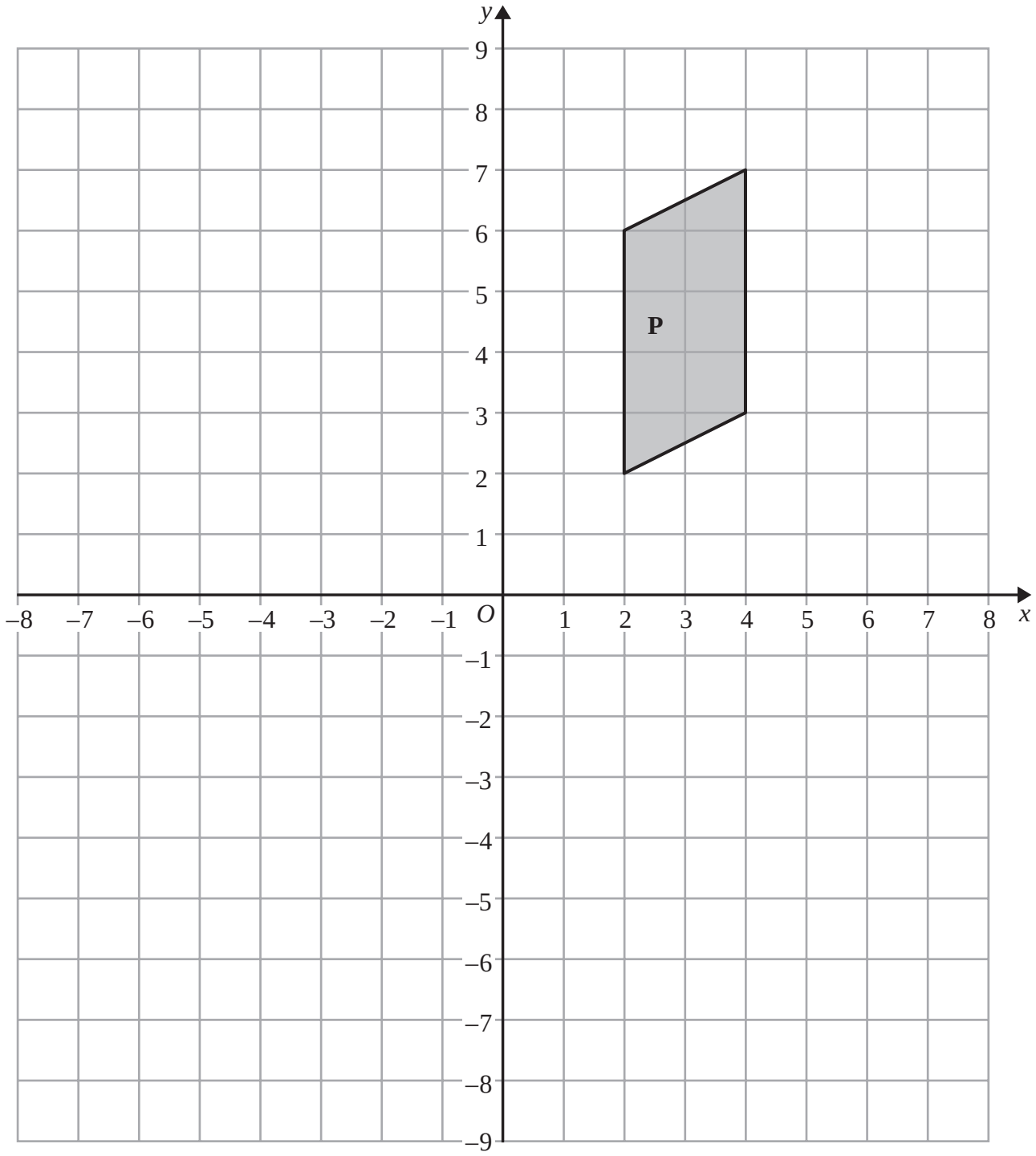
162



(a) Reflect shape **P** in the line $x = -1$

(2)

EXPERT TUITION



(b) Rotate shape **P** 90° anticlockwise about (0, 1).

(2)

(Total for Question 162 is 4 marks)

EXPERT TUITION

*163 The diagram shows the plan of a floor.

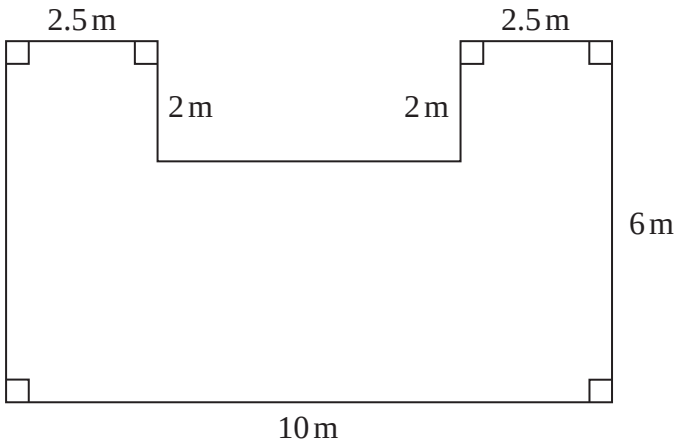


Diagram **NOT** accurately drawn

Angie is going to varnish the floor.

She needs 1 litre of varnish for 5 m^2 of floor.
There are 2.5 litres of varnish in each tin of varnish.

Angie has 3 tins of varnish.

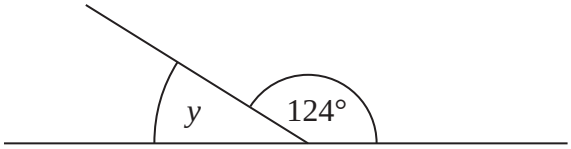
Does she have enough varnish for all the floor?
You must show all your working.

(Total for Question 163 is 5 marks)

EXPERT TUITION

164

Diagram **NOT** accurately drawn



(a) (i) Work out the size of the angle marked y.

.....°

(ii) Give a reason for your answer.

.....

(2)

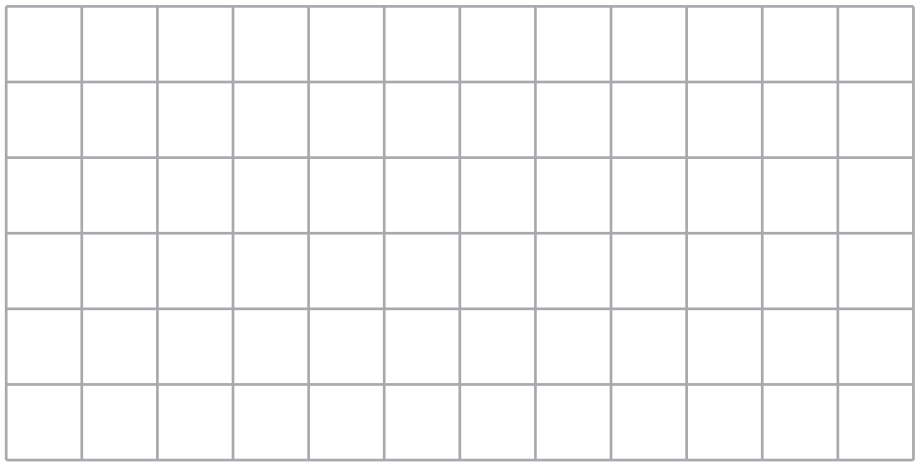
A quadrilateral has four angles.
Each angle is 90°

(b) Write down the mathematical name of this quadrilateral.

.....

(1)

(c) On the grid of centimetre squares, draw a kite.

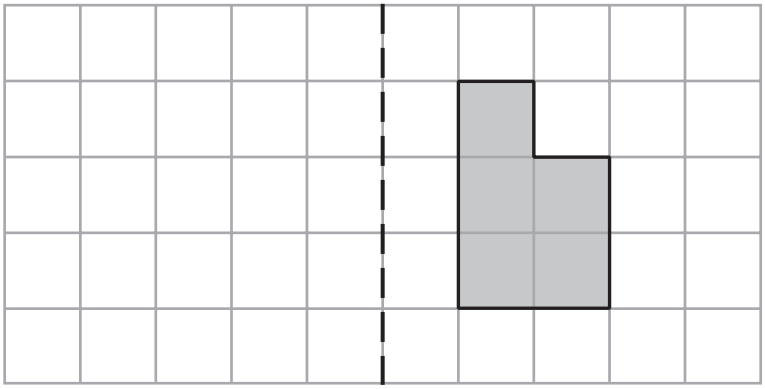


(1)

(Total for Question 164 is 4 marks)

EXPERT TUITION

165 Here is a shaded shape on a grid of centimetre squares.



(a) Find the perimeter of the shaded shape.

..... cm

(1)

(b) Reflect the shaded shape in the mirror line.

(2)

(Total for Question 165 is 3 marks)

EXPERT TUITION

166 Here is a rectangle.

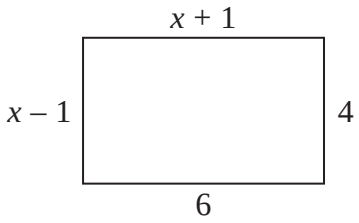


Diagram **NOT** accurately drawn

All measurements on the diagram are in centimetres.

(a) Find the value of x.

.....

(2)

Here is a triangle.

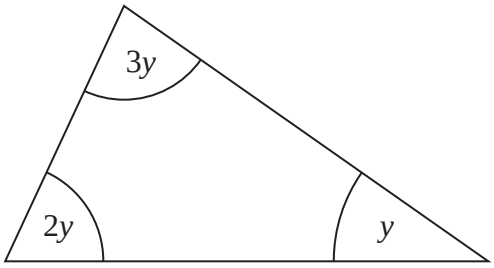


Diagram **NOT** accurately drawn

(b) Find the size of the angle marked y.

.....°

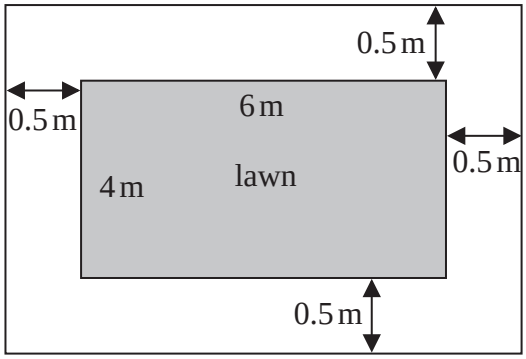
(2)

(Total for Question 166 is 4 marks)

EXPERT TUITION

***167** Here is a diagram of a garden.

Diagram **NOT** accurately drawn



The lawn is a 6 m by 4 m rectangle.
Sabia is going to put a path all the way around the lawn.
The path will be 0.5 m wide.

Sabia is going to use paving stones to make the path.
Each paving stone is a 0.5 m by 0.5 m square.
She has 35 paving stones.

Has Sabia got enough paving stones?
You must show all your working.

(Total for Question 167 is 4 marks)

EXPERT TUITION

***168**

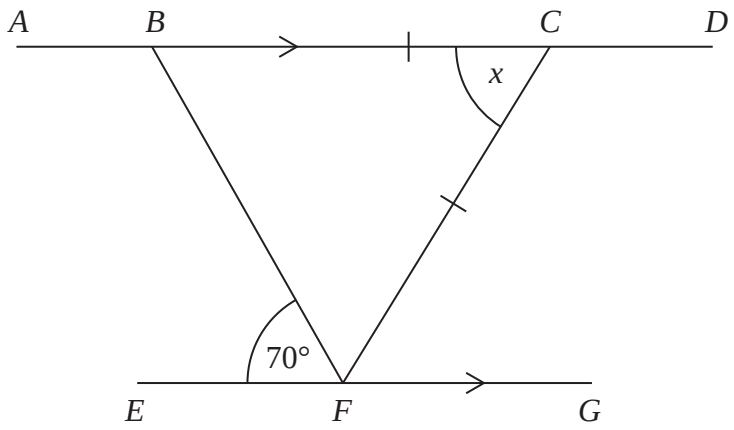


Diagram **NOT** accurately drawn

ABCD and *EFG* are parallel lines.
BC = *CF*
Angle *BFE* = 70°

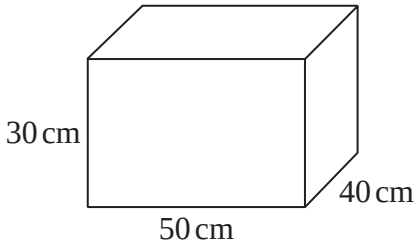
Work out the size of the angle marked *x*.
Give reasons for each stage of your working.

(Total for Question 168 is 4 marks)

EXPERT TUITION

***169** The diagram shows a container for oil.
The container is in the shape of a cuboid.
The container is empty.

Diagram **NOT** accurately drawn



Sally has to fill the container with oil.
A bottle of oil costs £3.50
There are 3000 cm^3 of oil in each bottle.

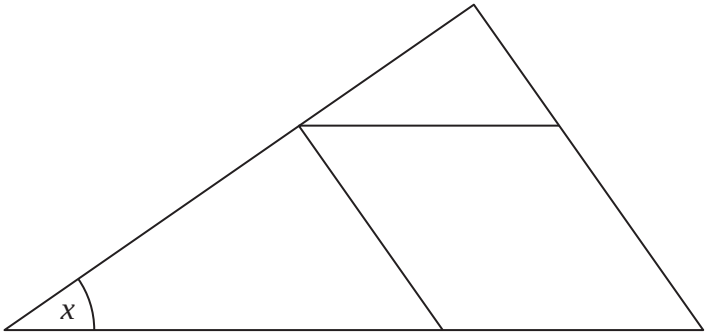
Sally must **not** spend more than £60 buying the oil.

Can Sally buy enough oil to fill the container?
You must show all your working.

(Total for Question 169 is 4 marks)

EXPERT TUITION

170



(a) On the diagram, mark with arrows (>>) a pair of parallel lines.

(1)

(b) On the diagram, mark with the letter R a right angle.

(1)

(c) Measure the size of the angle marked x.

.....°

(1)

(Total for Question 170 is 3 marks)

EXPERT TUITION

***171** Here is information about the maximum size of a small parcel.

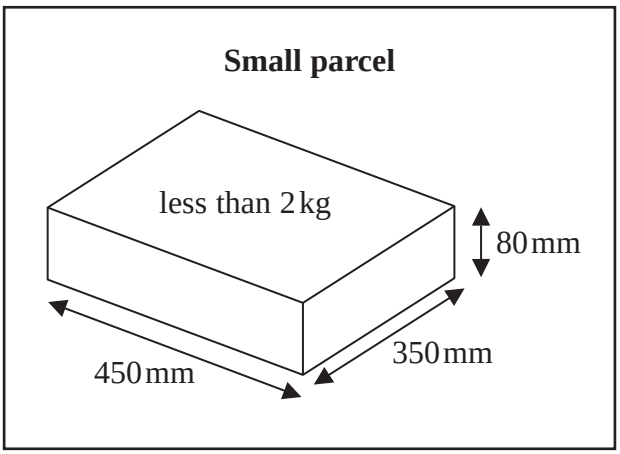


Diagram **NOT** accurately drawn

A small parcel must have

a weight less than 2 kg
and maximum dimensions 450 mm by 350 mm by 80 mm

Kamil has three boxes.
Each box weighs 600 g.
Each box is 40 cm by 21 cm by 2.5 cm.

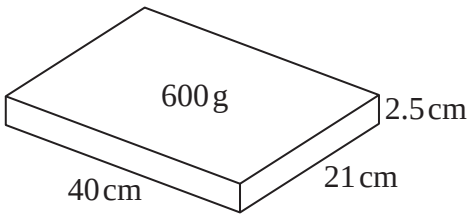
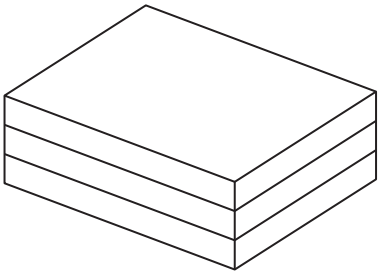


Diagram **NOT** accurately drawn

Kamil puts the three boxes together to make one parcel.



Kamil says that this parcel is a small parcel.

Is Kamil correct?
You must give reasons for your answer.

EXPERT TUITION

(Total for Question 171 is 4 marks)

***172**

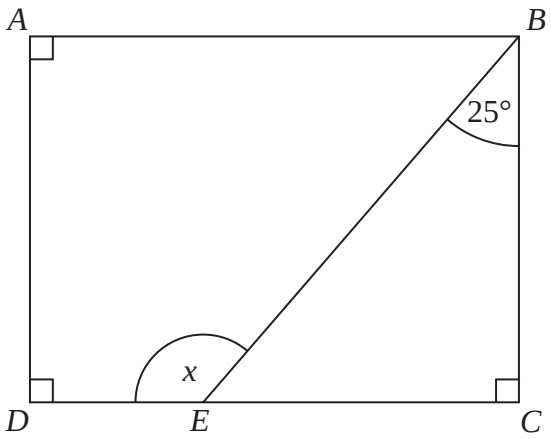


Diagram **NOT** accurately drawn

ABCD is a rectangle.
E is a point on *DC*.
Angle *EBC* = 25°

Work out the size of the angle marked *x*.
Give reasons for your answer.

(Total for Question 172 is 3 marks)

EXPERT TUITION

173 Jane makes cheese.

The cheese is in the shape of a cuboid.

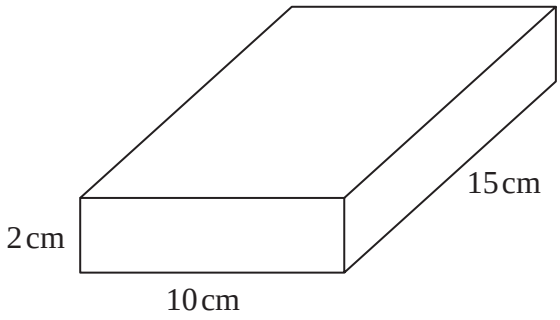


Diagram **NOT** accurately drawn

Jane is going to make a new cheese.

The new cheese will also be in the shape of a cuboid.
The cross section of the cuboid will be a 5 cm by 5 cm square.

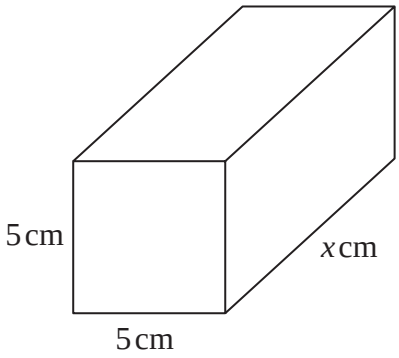


Diagram **NOT** accurately drawn

Jane wants the new cuboid to have the same volume as the 2 cm by 10 cm by 15 cm cuboid.

Work out the value of x.

.....

(Total for Question 173 is 3 marks)

EXPERT TUITION

***174** The diagram shows the floor plan of Mary's conservatory.

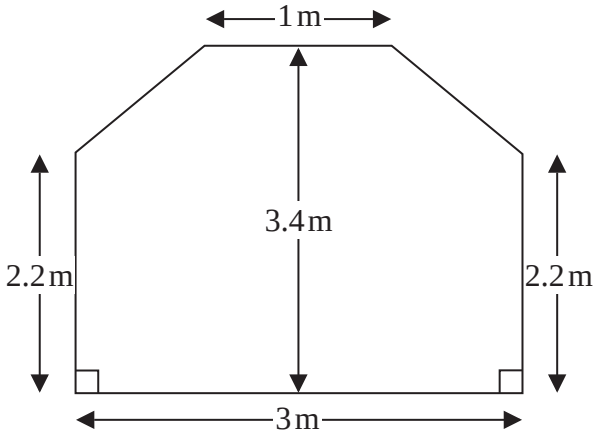


Diagram **NOT** accurately drawn

Mary is going to cover the floor with tiles.

The tiles are sold in packs.
One pack of tiles will cover $2\,m^2$
A pack of tiles normally costs £24.80
Mary gets a discount of 25% off the cost of the tiles.

Mary has £100

Does Mary have enough money to buy all the tiles she needs?
You must show all your working.

(Total for Question 174 is 5 marks)

EXPERT TUITION

175 Harry is going to plant some bean plants in his garden.
The garden is in the shape of a rectangle 3 metres by 2 metres.

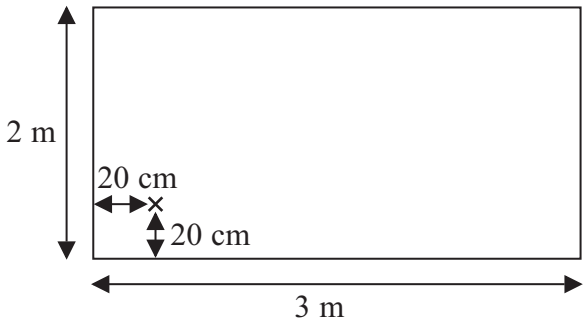


Diagram **NOT** accurately drawn

Harry will plant the first bean plant 20 cm from the edges of the garden, as shown in the diagram.

Harry will plant the bean plants in rows.
In each row, the space between plants will be 20 cm.
The space between rows will be 20 cm.

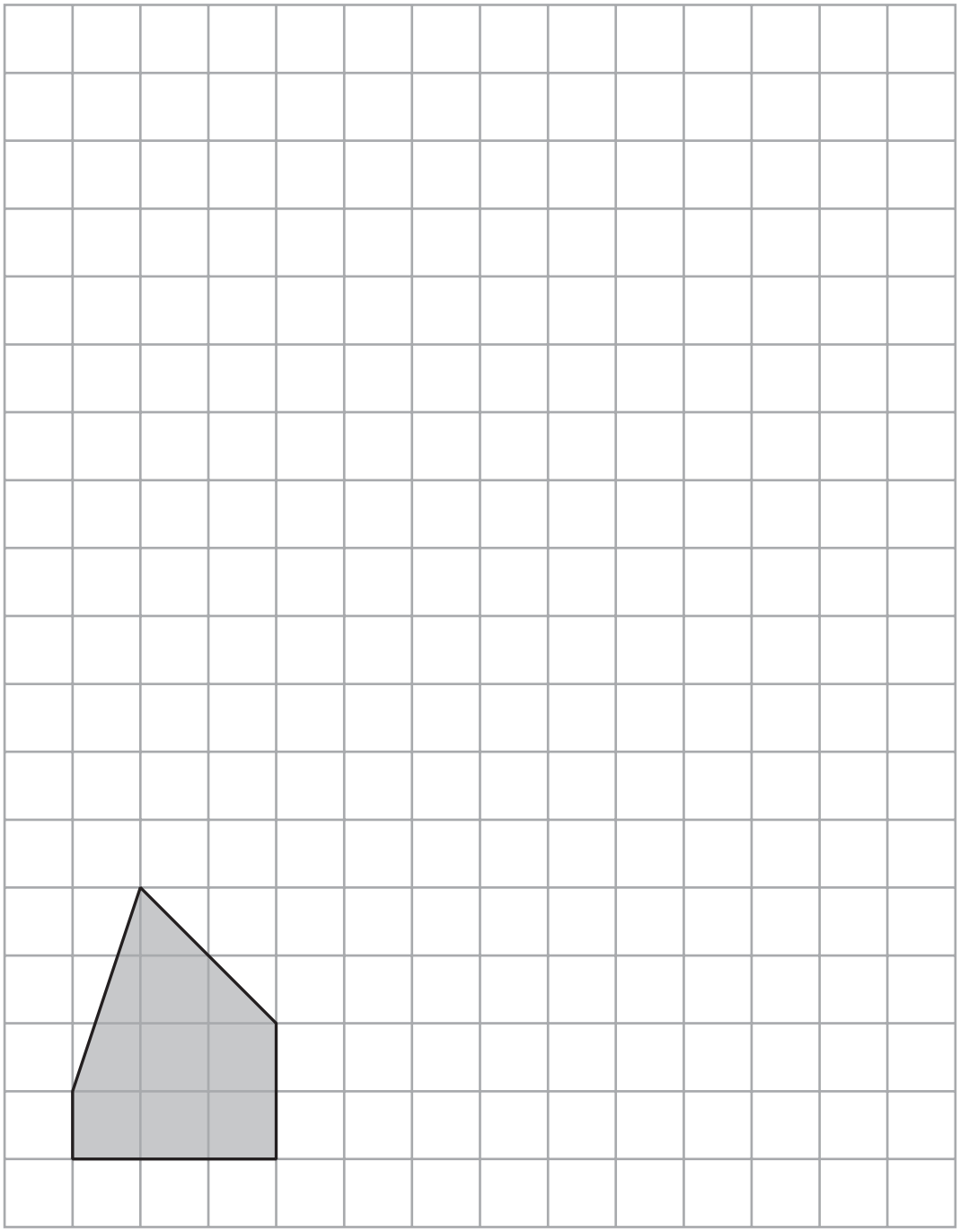
Work out the greatest number of bean plants Harry can plant in his garden.

.....

(Total for Question 175 is 4 marks)

EXPERT TUITION

176



On the grid, draw an enlargement of the shaded shape with scale factor 3

(Total for Question 176 is 2 marks)

177 The diagram shows a cuboid.

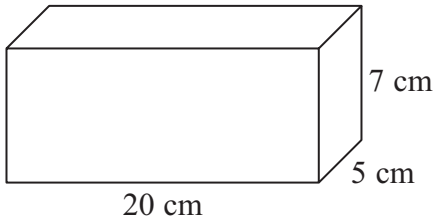


Diagram **NOT** accurately drawn

Work out the volume of the cuboid.

.....

(Total for Question 177 is 3 marks)

EXPERT TUITION

***178**

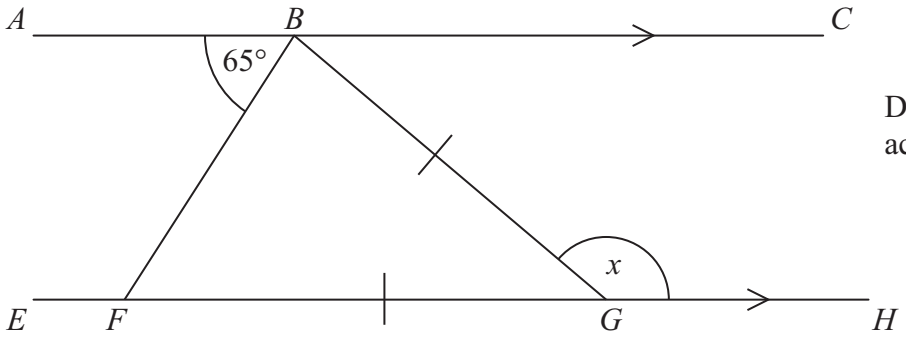


Diagram **NOT** accurately drawn

ABC is parallel to *EFGH*.

GB = *GF*
Angle *ABF* = 65°

Work out the size of the angle marked *x*.
Give reasons for your answer.

(Total for Question 178 is 4 marks)

EXPERT TUITION

179 The diagram shows the plan of a floor.

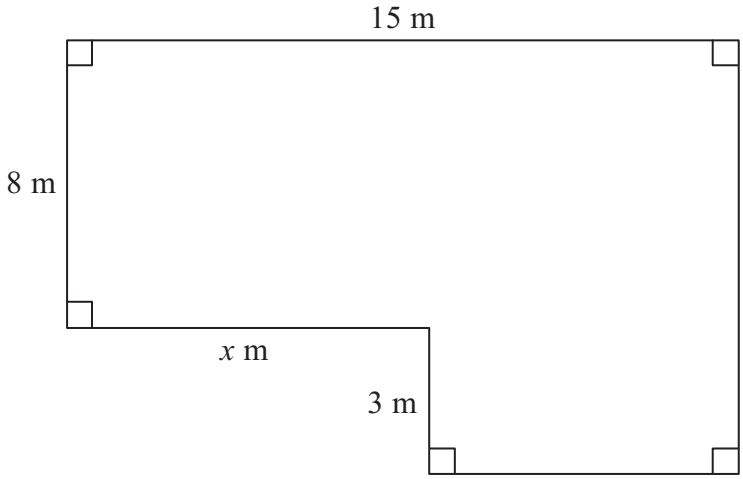


Diagram **NOT** accurately drawn

The area of the floor is 138 m^2.

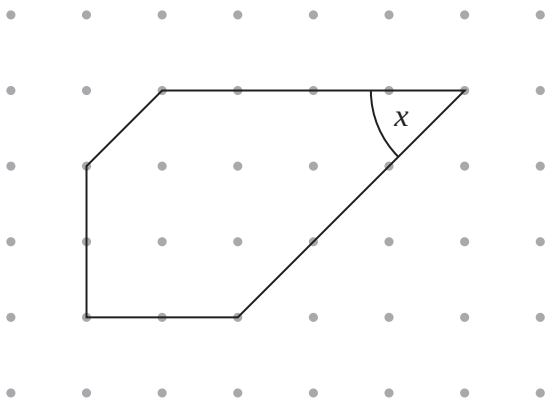
Work out the value of x.

.....

(Total for Question 179 is 4 marks)

EXPERT TUITION

180 Here is a 5-sided polygon on a dotted centimetre grid.



(a) Write down the mathematical name for a 5-sided polygon.

.....

(1)

(b) On the diagram, mark with arrows (>>) a pair of parallel lines.

(1)

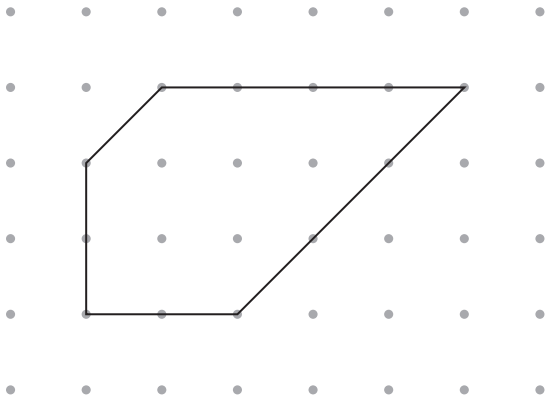
(c) What type of angle is the angle marked x?

.....

(1)

Here is the 5-sided polygon on a dotted centimetre grid.

(d) Work out the area of the 5-sided polygon.



.....

(2)

(Total for Question 180 is 5 marks)

EXPERT TUITION

181

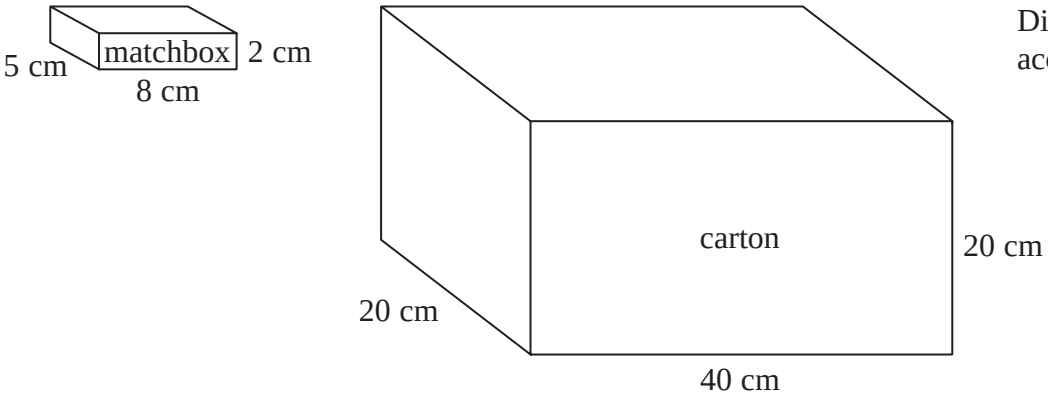


Diagram **NOT** accurately drawn

A matchbox is 5 cm by 8 cm by 2 cm.
A carton is 20 cm by 40 cm by 20 cm.

The carton is completely filled with matchboxes.

Work out the number of matchboxes in the carton.

.....

(Total for Question 181 is 3 marks)

EXPERT TUITION

***182**

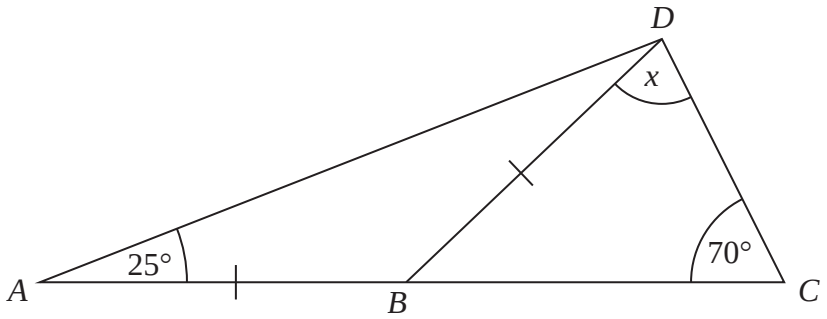


Diagram **NOT** accurately drawn

ABC is a straight line.
AB = *BD*
Angle *BAD* = 25°
Angle *BCD* = 70°

Work out the size of the angle marked *x*.
Give reasons for your answer.

(Total for Question 182 is 4 marks)

EXPERT TUITION

***183** The diagram shows the plan of a small field.

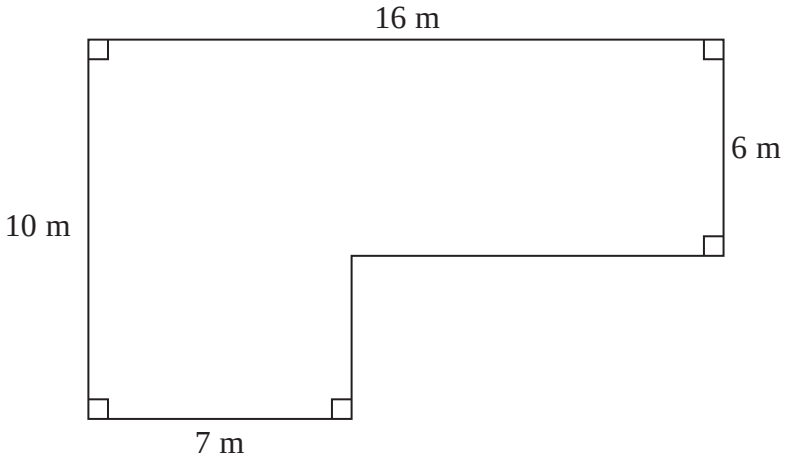


Diagram **NOT** accurately drawn

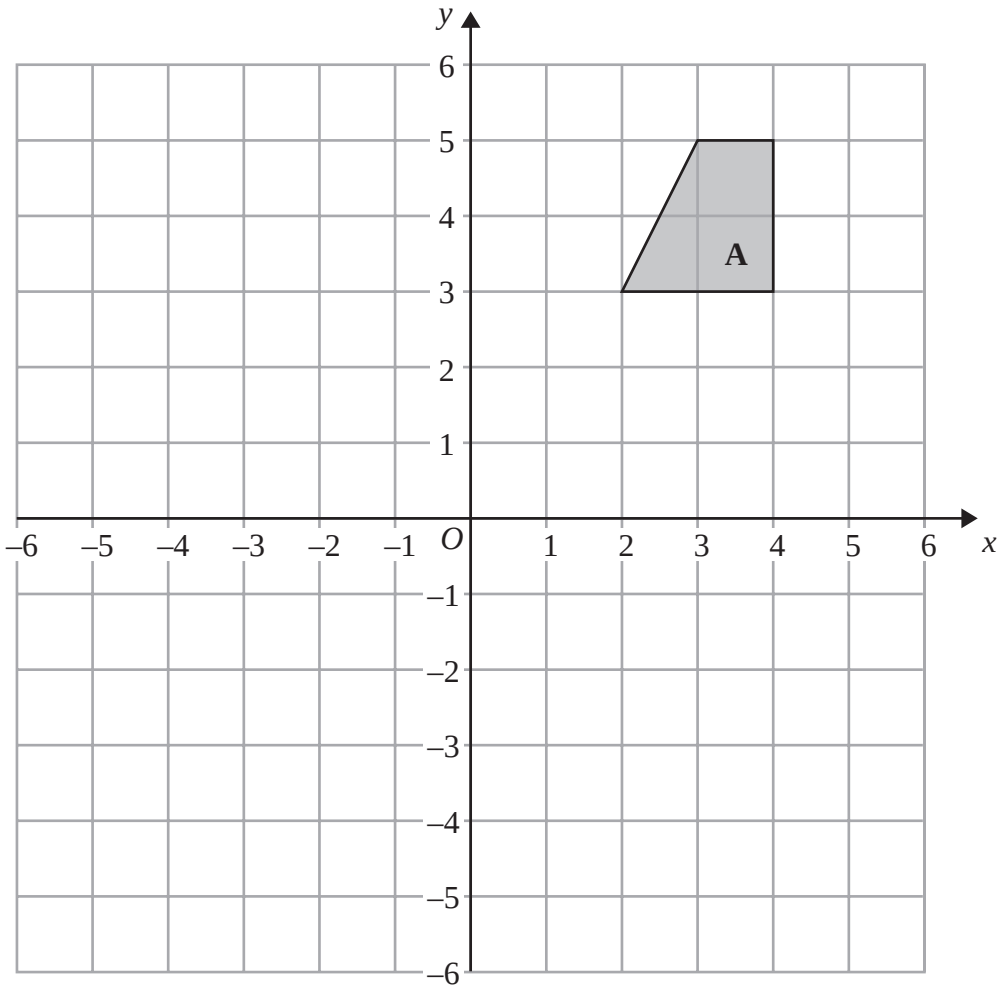
Kevin is going to keep some pigs in the field.
Each pig needs an area of 36 square metres.

Work out the greatest number of pigs Kevin can keep in the field.

(Total for Question 183 is 4 marks)

EXPERT TUITION

184

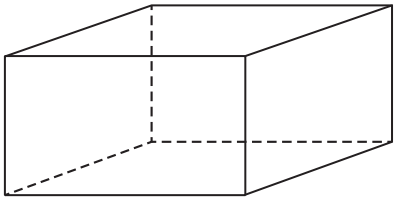


On the grid, rotate shape **A** 180° about the point (1, 1).

(Total for Question 184 is 2 marks)

EXPERT TUITION

185 Here is a cuboid.



The following sentences are about cuboids.

Complete each sentence by writing the correct number in the gap.

(a) (i) A cuboid has ..... faces.

(ii) A cuboid has ..... edges.

(iii) A cuboid has ..... vertices.

(3)

Here is a different cuboid.

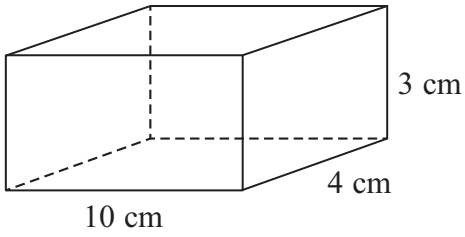


Diagram **NOT** accurately drawn

(b) Work out the volume of the cuboid.

..... cm^3

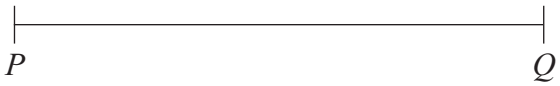
(2)

(Total for Question 185 is 5 marks)

EXPERT TUITION

186 (a) Measure the length of the line PQ.

Give your answer in centimetres.



..... cm

(1)

(b)

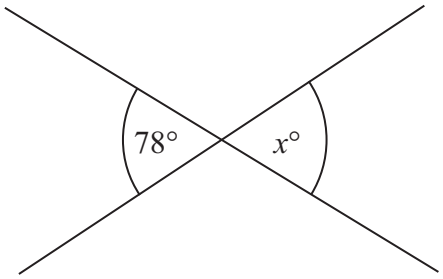


Diagram **NOT** accurately drawn

(i) Write down the value of x.

$x =$ .....

(ii) Give a reason for your answer.

.....

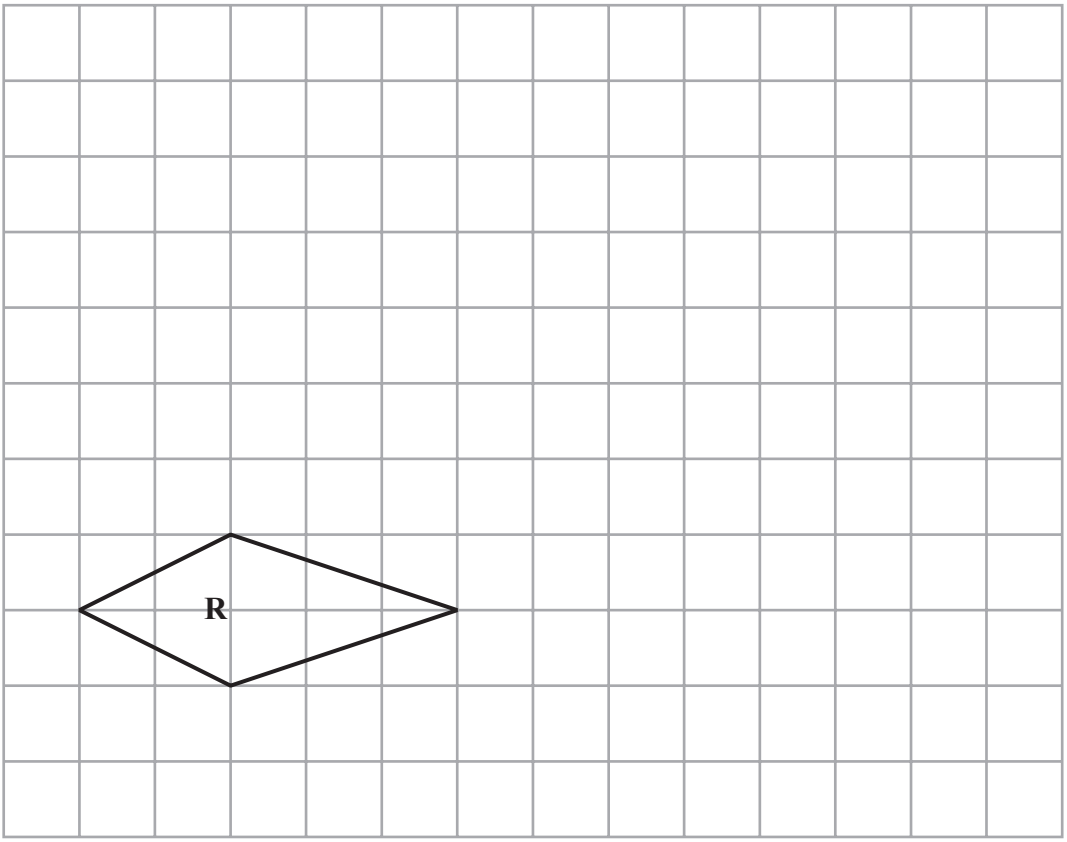
.....

(2)

(Total for Question 186 is 3 marks)

EXPERT TUITION

187



On the grid, draw an enlargement of shape **R** with a scale factor of 2

(Total for Question 187 is 2 marks)

188 Make an accurate drawing of an equilateral triangle of side length 5 cm.

(Total for Question 188 is 2 marks)

EXPERT TUITION

189 Here is a rule for working out the area of a triangle.

> Multiply the base by the height.
>
> Then divide by 2

A triangle has a base of 12 cm and a height of 6 cm.

(a) Use the rule to work out the area of the triangle.

..... cm^2

(2)

A different triangle has an area of 55 cm^2.
It has a height of 11 cm.

(b) Work out the base of this triangle.

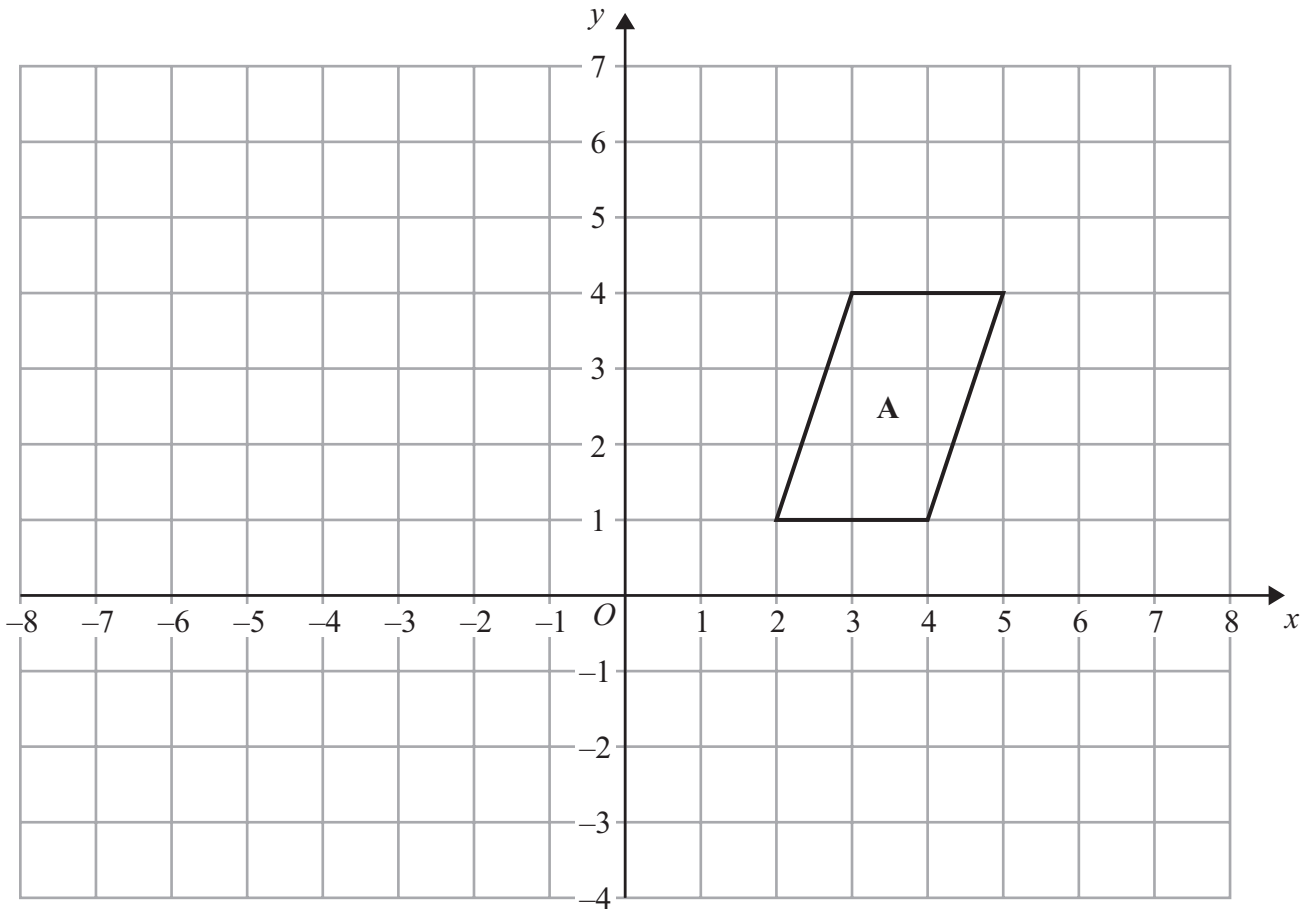
..... cm

(2)

(Total for Question 189 is 4 marks)

EXPERT TUITION

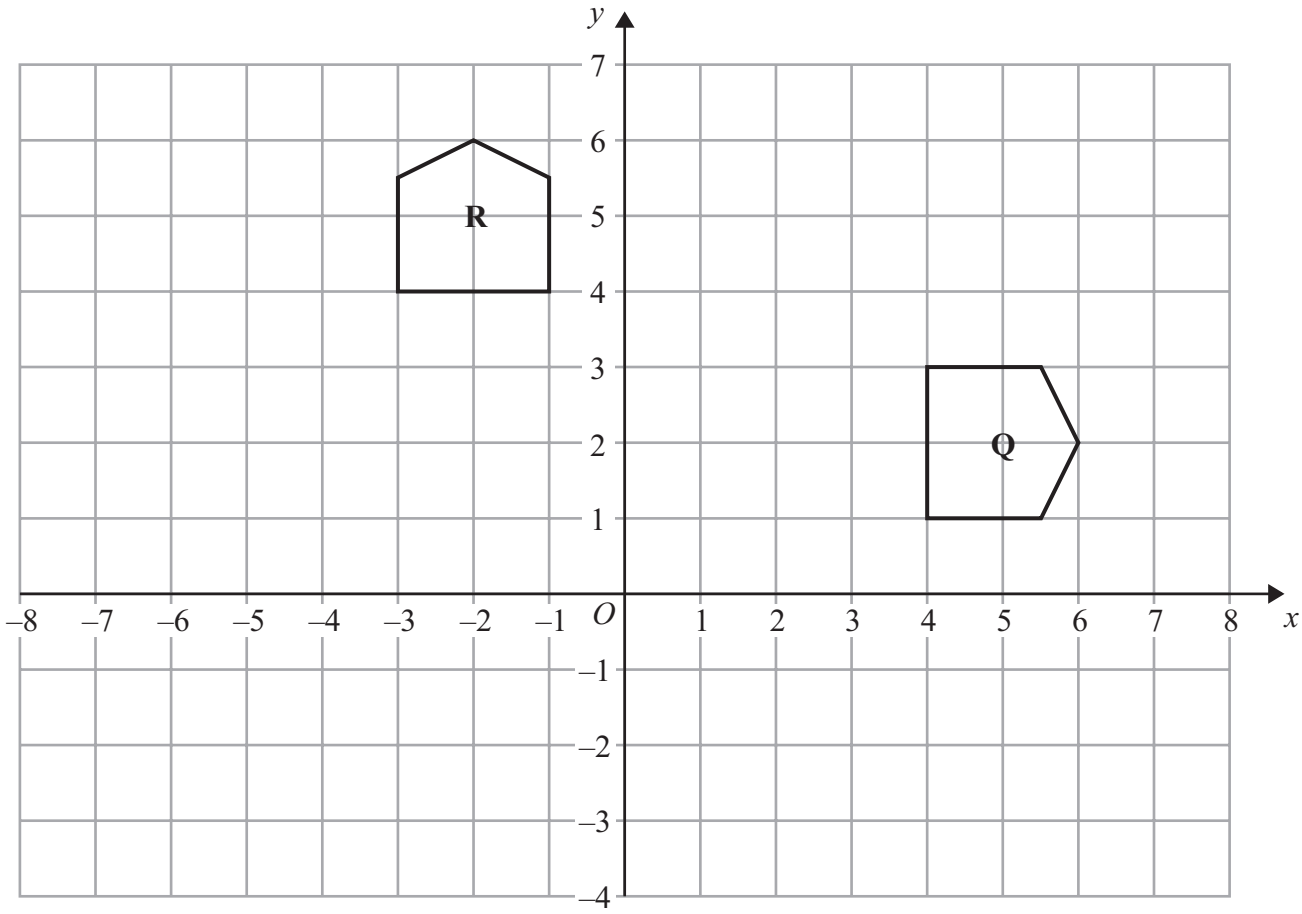
190



(a) Translate shape **A** by the vector $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$.

(1)

EXPERT TUITION



(b) Describe fully the single transformation that maps shape **Q** onto shape **R**.

.....

.....

.....

.....

(3)

(Total for Question 190 is 4 marks)

EXPERT TUITION

***191** The diagram shows the floor of a village hall.

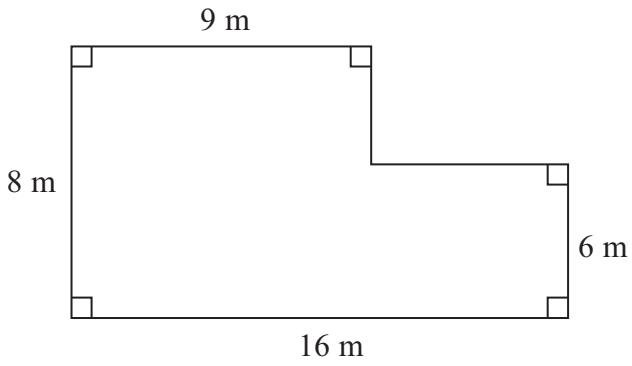


Diagram **NOT** accurately drawn

The caretaker needs to polish the floor.

One tin of polish normally costs £19
One tin of polish covers 12 m^2 of floor.

There is a discount of 30% off the cost of the polish.

The caretaker has £130

Has the caretaker got enough money to buy the polish for the floor?
You must show all your working.

(Total for Question 191 is 5 marks)

EXPERT TUITION

192 ABC is a triangle.

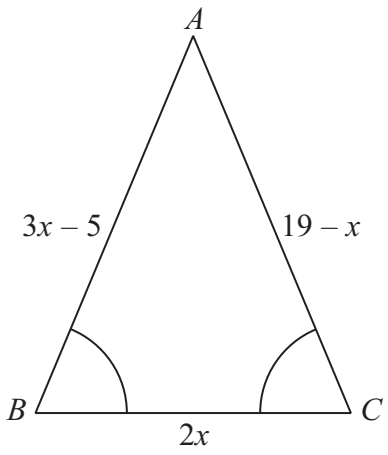


Diagram **NOT** accurately drawn

Angle ABC = angle BCA.

The length of side AB is $(3x - 5)$ cm.
The length of side AC is $(19 - x)$ cm.
The length of side BC is $2x$ cm.

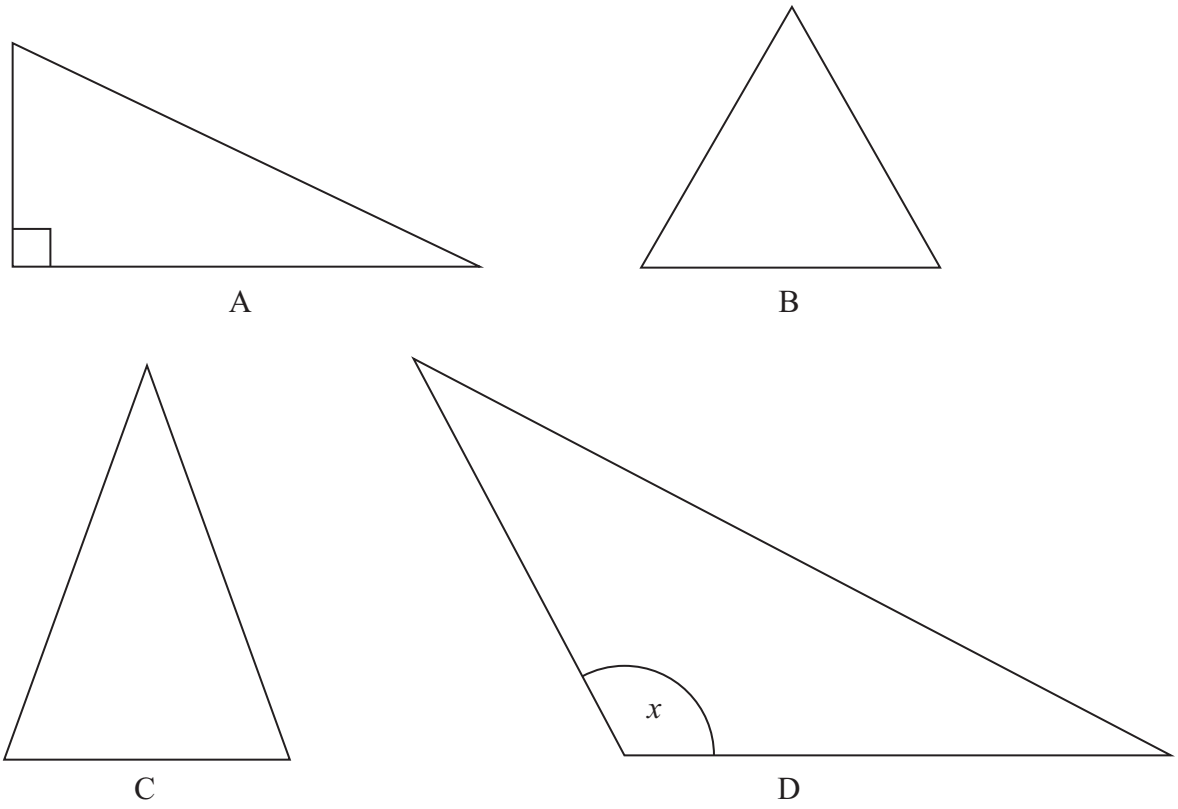
Work out the perimeter of the triangle.
Give your answer as a number of centimetres.

..... cm

(Total for Question 192 is 5 marks)

EXPERT TUITION

193 Here are four triangles.



One of these triangles is an equilateral triangle.

(a) Write down the letter of the equilateral triangle.

.....

(1)

(b) Measure the size of the angle marked x.

..... °

(1)

(c) Measure the length of the line EF.
Give your answer in centimetres.

E ——————————————— F

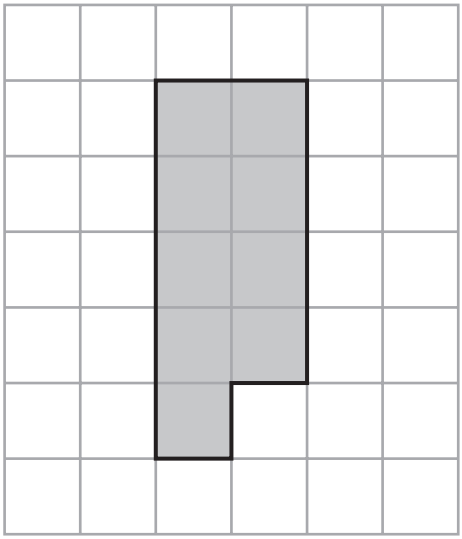
..... cm

(1)

(Total for Question 193 is 3 marks)

EXPERT TUITION

194 The shaded shape is drawn on a grid of centimetre squares.

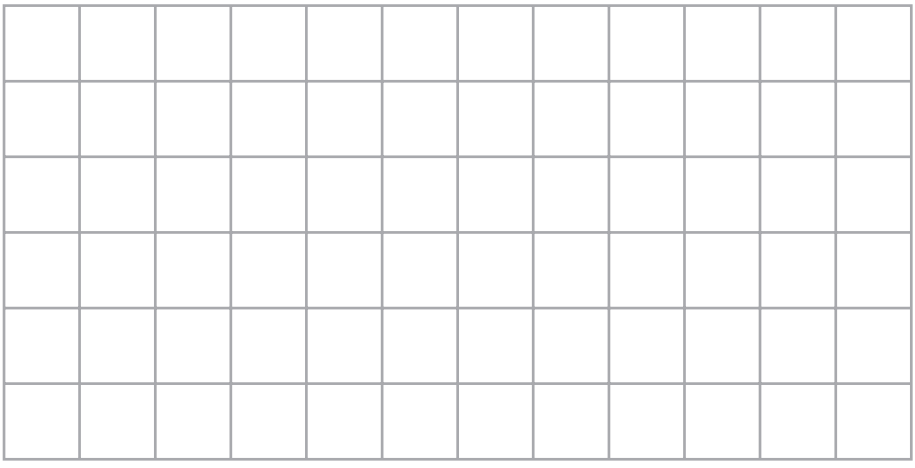


(a) Find the perimeter of the shaded shape.

.....

(2)

(b) On the grid below, draw a square with the same **area** as the shaded shape.



(1)

(Total for Question 194 is 3 marks)

EXPERT TUITION

***195**

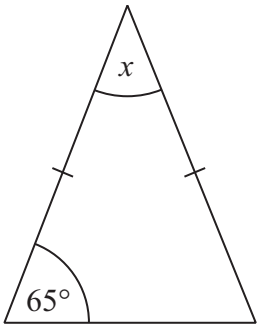


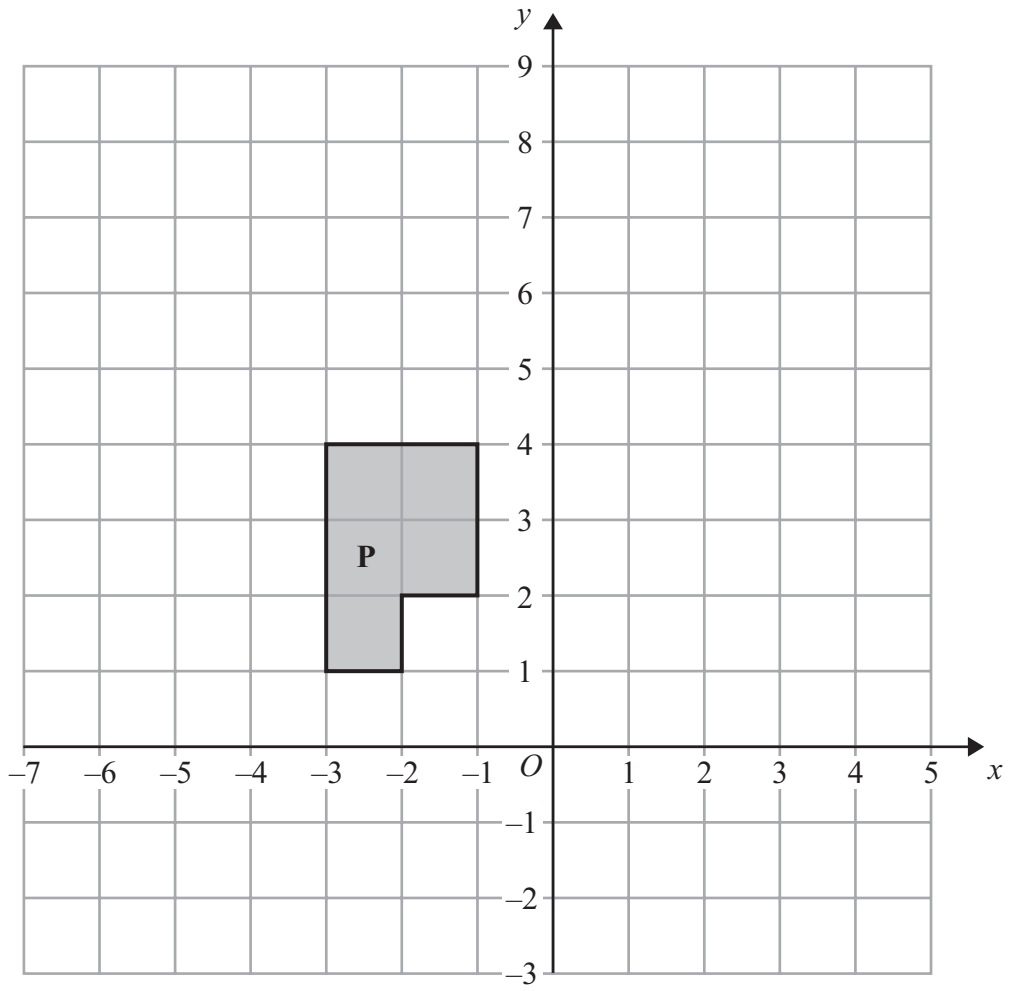
Diagram **NOT** accurately drawn

Work out the size of the angle marked x.
Give reasons for your answer.

(Total for Question 195 is 3 marks)

EXPERT TUITION

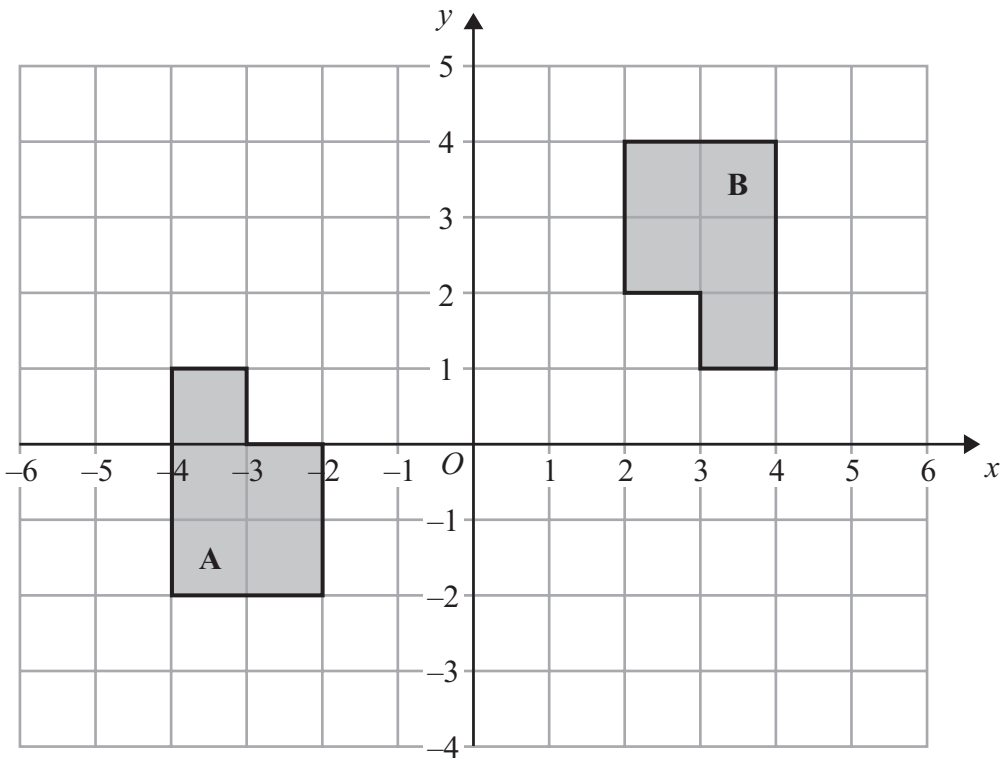
196



(a) Translate shape **P** by the vector $\begin{pmatrix} 5 \\ -2 \end{pmatrix}$

(2)

EXPERT TUITION



(b) Describe fully the single transformation that maps shape **A** onto shape **B**.

.....

.....

(3)

(Total for Question 196 is 5 marks)

EXPERT TUITION

197 The diagram shows a garden in the shape of a rectangle.

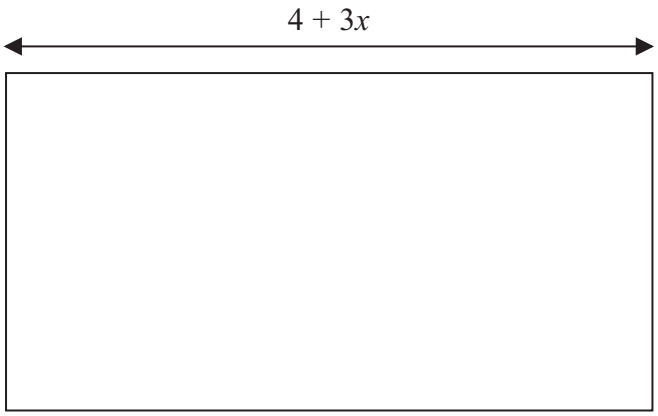


Diagram **NOT** accurately drawn

All measurements are in metres.
The perimeter of the garden is 32 metres.

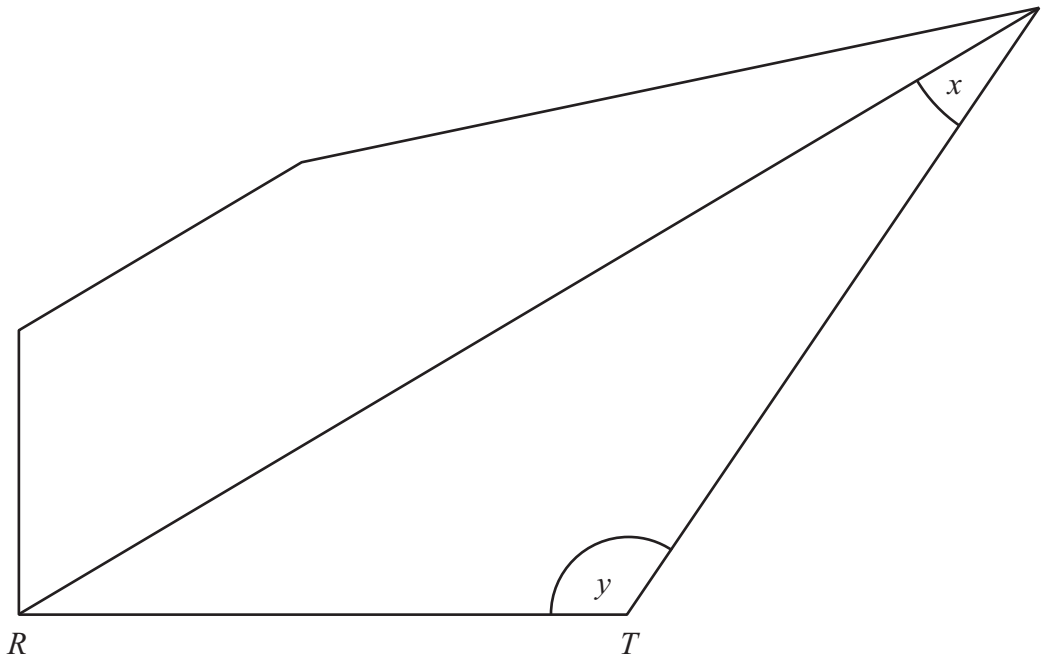
Work out the value of x

.....

(Total for Question 197 is 4 marks)

EXPERT TUITION

198



(a) Mark with arrows (>>) a pair of parallel lines.

(1)

(b) Measure the length of the line *RT*.

..... cm

(1)

(c) What type of angle is angle *x*?

.....

(1)

(d) Measure the size of angle *y*.

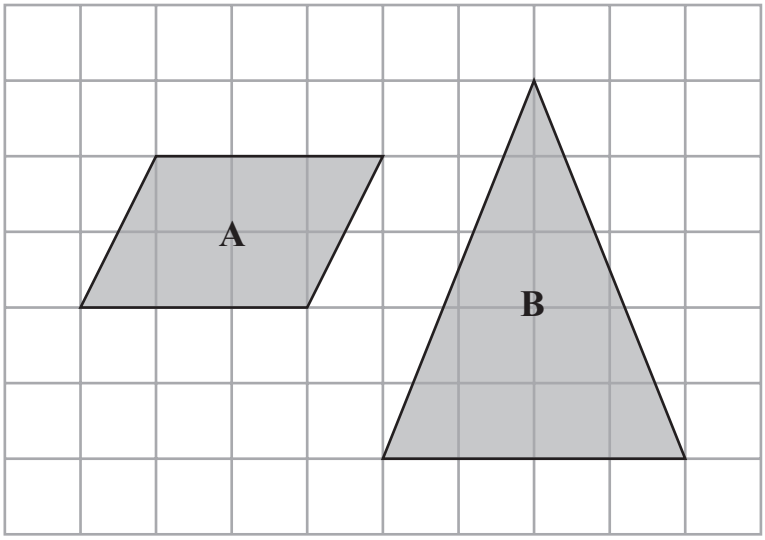
.....°

(1)

(Total for Question 198 is 4 marks)

EXPERT TUITION

199 Here are a quadrilateral and a triangle drawn on a centimetre grid.



(a) Write down the special name for quadrilateral **A**.

.....

(1)

(b) Write down the special name for triangle **B**.

.....

(1)

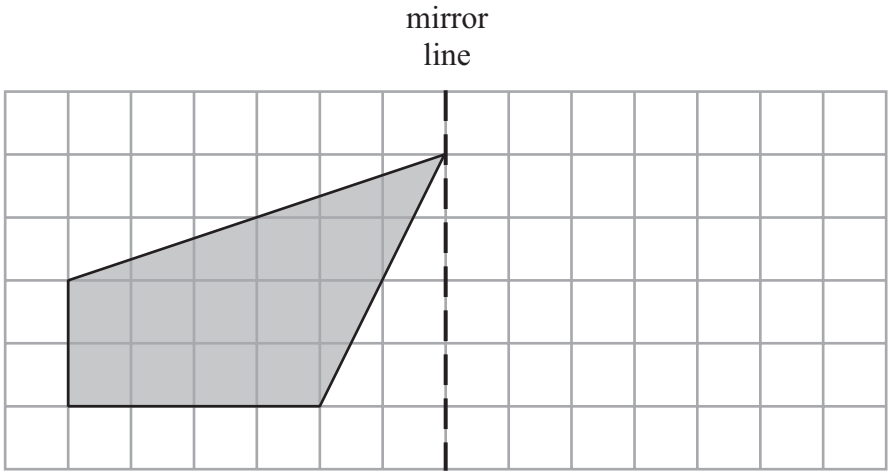
(c) Find the area of quadrilateral **A**.

..... cm^2

(2)

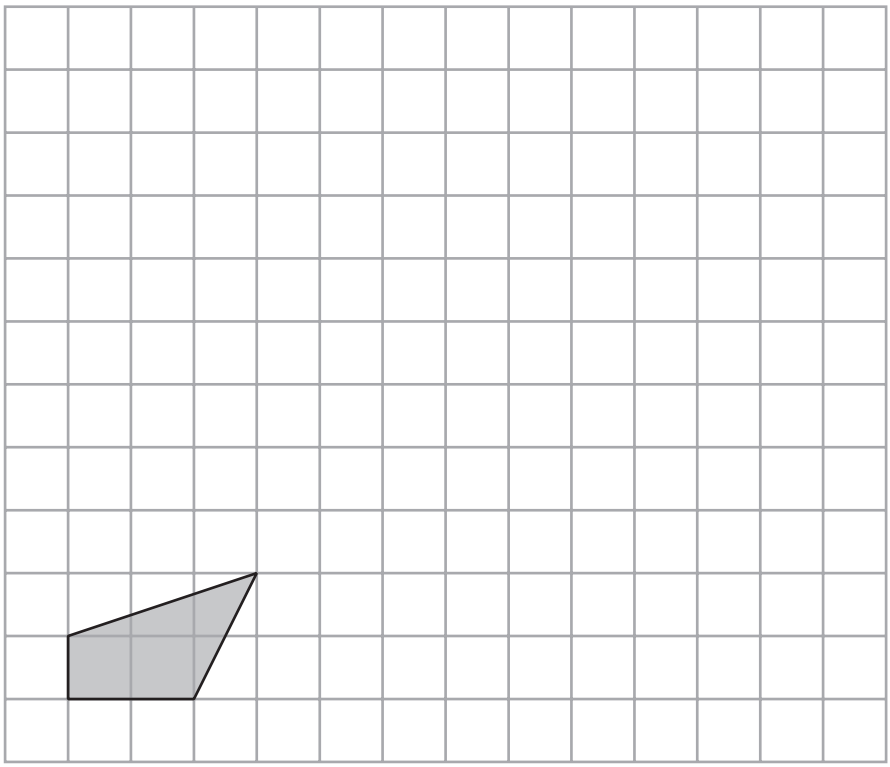
(Total for Question 199 is 4 marks)

200



(a) Reflect the shaded shape in the mirror line.

(2)



(b) On the grid, enlarge the shaded shape using a scale factor of 3

(2)

EXPERT TUITION

Here is a different shape.

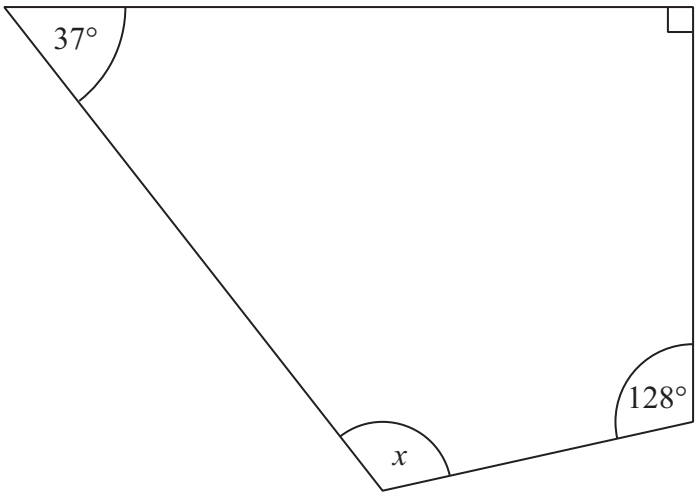


Diagram **NOT** accurately drawn

(c) Work out the size of angle x.

.....°

(2)

(Total for Question 200 is 6 marks)

***201**

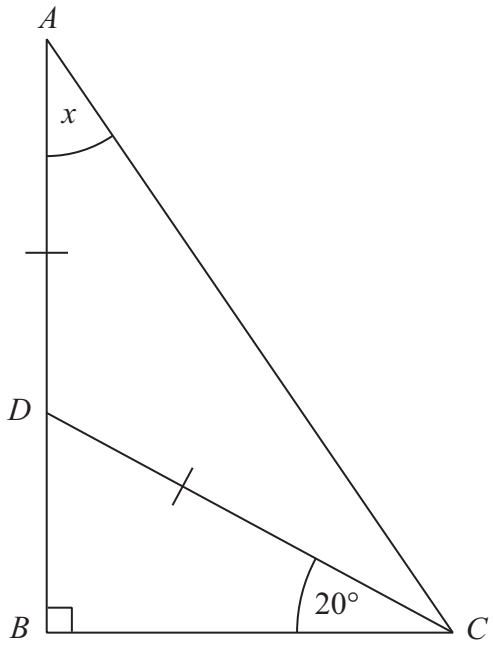


Diagram **NOT** accurately drawn

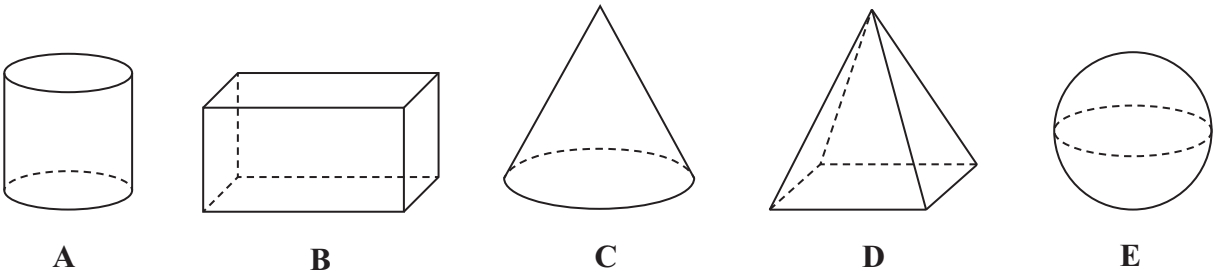
Triangle *ABC* is a right-angled triangle.
ADB is a straight line.
DA = *DC*
Angle *BCD* = 20°

Work out the size of the angle marked *x*.
You must give reasons for each stage of your working.

(Total for Question 201 is 4 marks)

EXPERT TUITION

202 Here are some solid 3-D shapes.



A **B** **C** **D** **E**

(a) Write down the letter of the shape that is a sphere.

.....

(1)

(b) Write down the mathematical name of shape **A**.

.....

(1)

(c) How many faces does shape **B** have?

.....

(1)

(d) How many edges does shape **D** have?

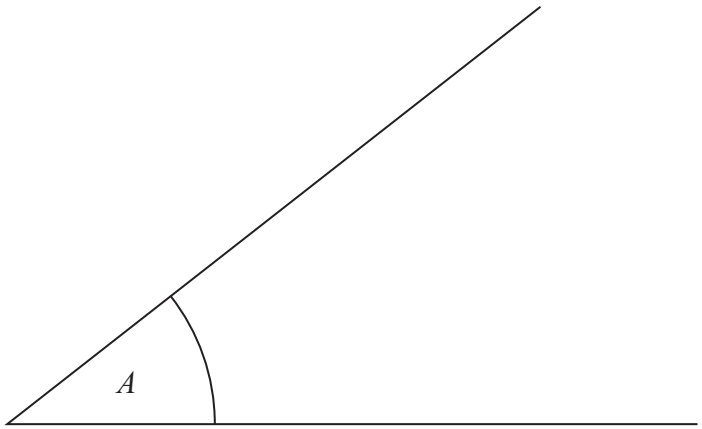
.....

(1)

(Total for Question 202 is 4 marks)

EXPERT TUITION

203



(a) Measure the size of the angle marked A.

.....°

(1)

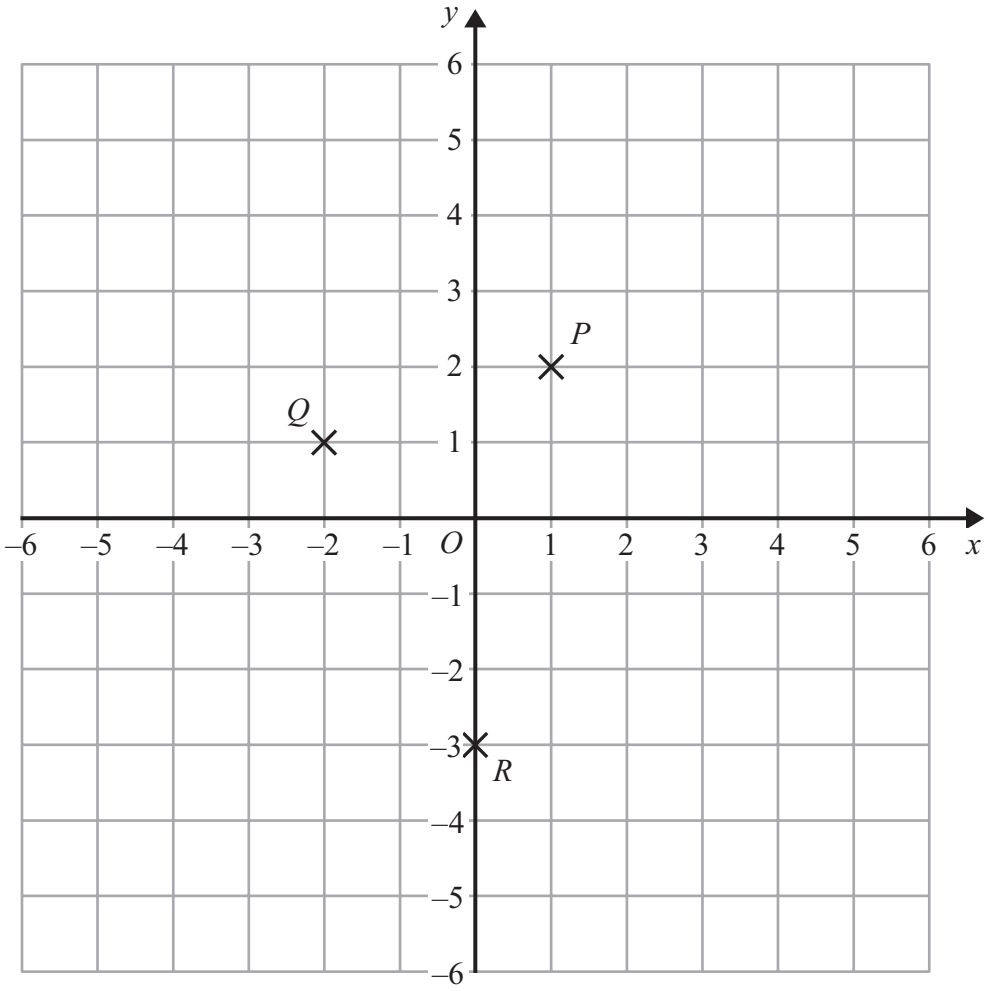
(b) In the space below, draw a line of length 5 cm.

(1)

(Total for Question 203 is 2 marks)

EXPERT TUITION

204



(a) Write down the coordinates of the point P.

(.....,.....)

(1)

(b) Write down the coordinates of the point R.

(.....,.....)

(1)

P, Q and R are three vertices of a parallelogram.

(c) Write down the coordinates of the fourth vertex of this parallelogram.

(.....,.....)

(1)

(Total for Question 204 is 3 marks)

EXPERT TUITION

***205**

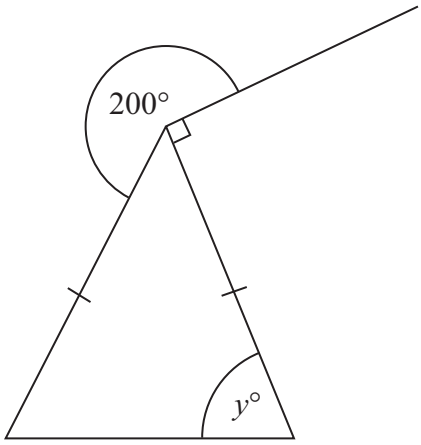


Diagram **NOT** accurately drawn

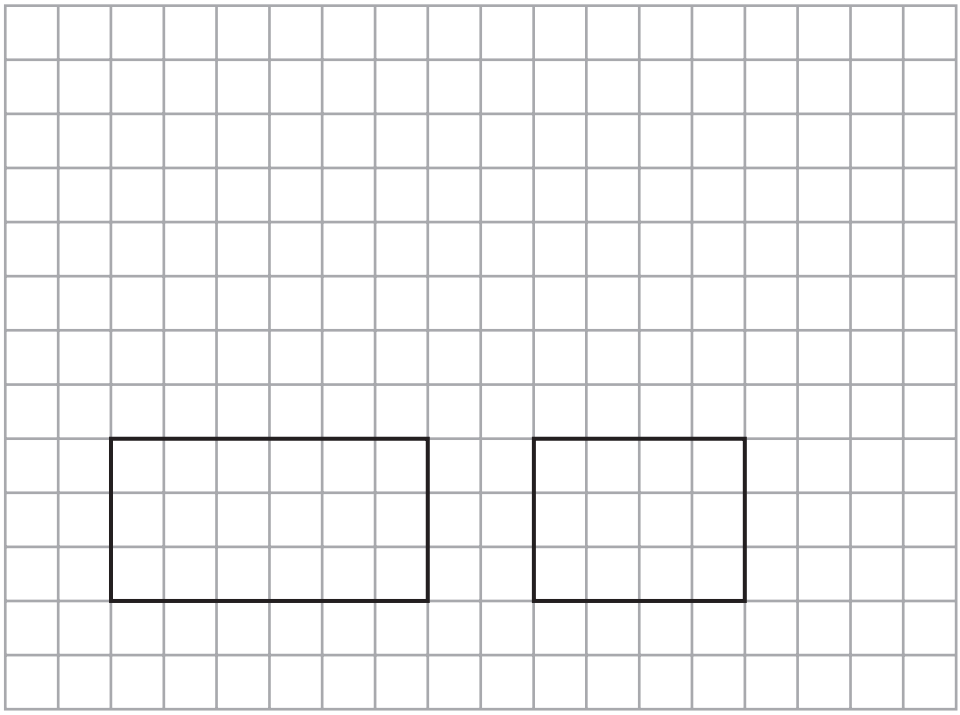
Work out the value of y.
Give reasons for your answer.

(Total for Question 205 is 4 marks)

EXPERT TUITION

206 The front elevation and the side elevation of a cuboid are drawn on the grid.

On the grid, draw the plan of the cuboid.



(Total for Question 206 is 2 marks)

EXPERT TUITION

207 Here is a diagram of Jim's garden.

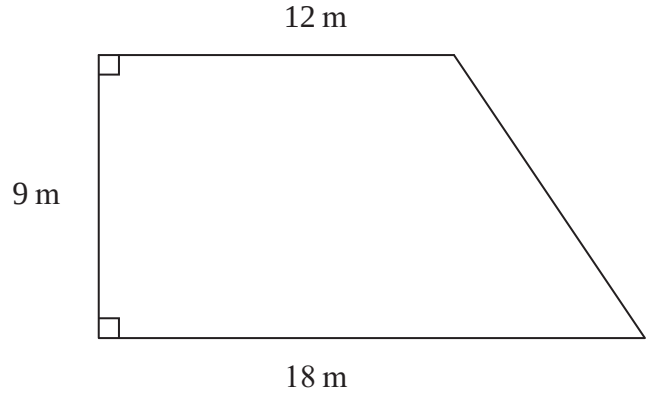


Diagram **NOT** accurately drawn

Jim wants to cover his garden with grass seed to make a lawn.

Grass seed is sold in bags.
There is enough grass seed in each bag to cover 20 m^2 of garden.

Each bag of grass seed costs £4.99

Work out the least cost of putting grass seed on Jim's garden.

£ .....

(Total for Question 207 is 4 marks)

EXPERT TUITION

208 The diagram shows a prism.

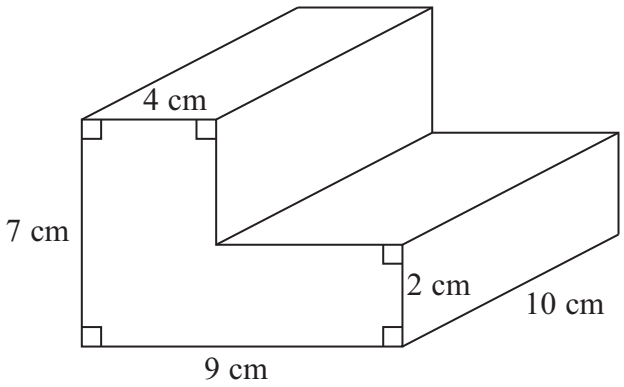


Diagram **NOT** accurately drawn

Work out the volume of the prism.

.....cm^3

(Total for Question 208 is 3 marks)

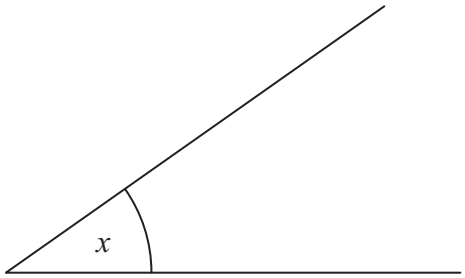
EXPERT TUITION

209 (a) Measure the length of the line AB.
Give your answer in centimetres.

..... cm

(1)

(b) Measure the size of angle x.



..... °

(1)

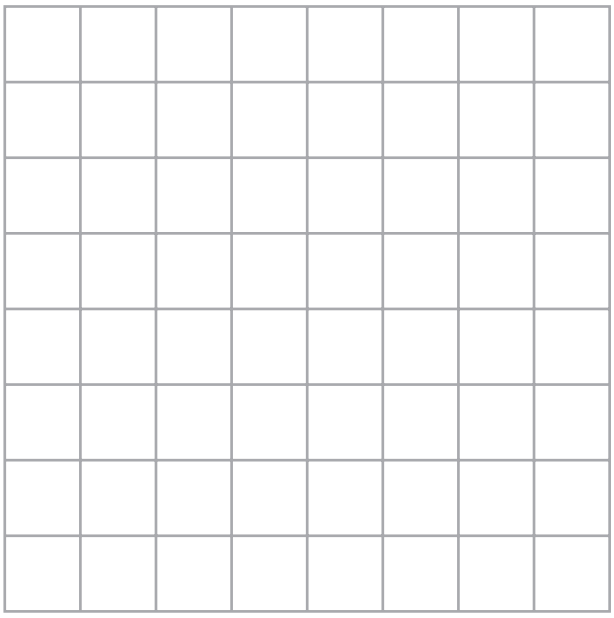
(c) In the space below, draw accurately a circle of radius 5 cm.
Use the point C as the centre of your circle.

(1)

(Total for Question 209 is 3 marks)

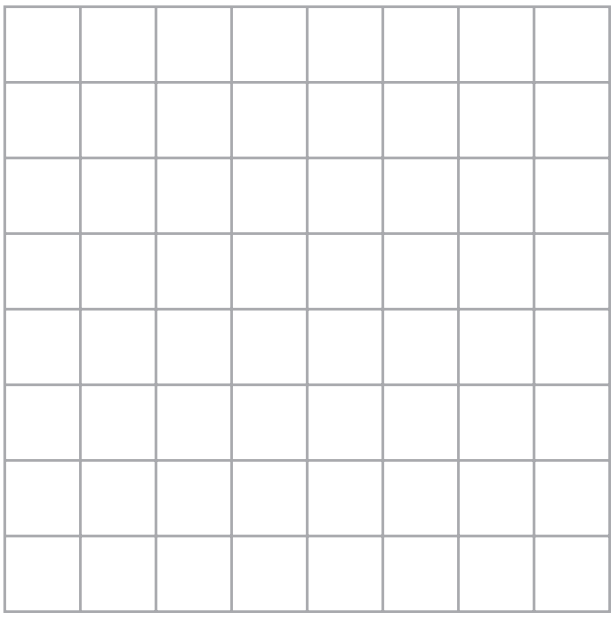
EXPERT TUITION

210 (a) On the grid, draw an isosceles triangle.



(1)

(b) On the grid, draw a rectangle with an area of 12 cm^2.



(2)

(Total for Question 210 is 3 marks)

EXPERT TUITION

211 Amy has some toy bricks.
Each brick is a cube of side 1 cm.

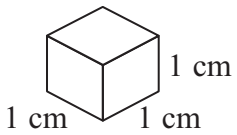
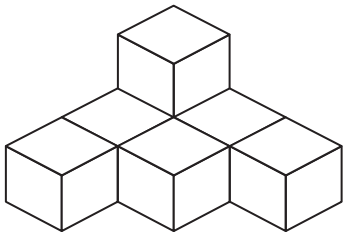


Diagram **NOT** accurately drawn

Amy uses some of the bricks to make this solid shape.



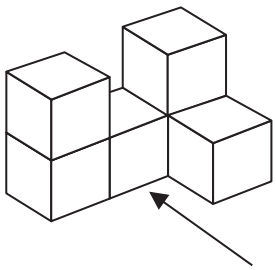
Amy adds some more of the bricks to this solid shape to make a cube of side 3 cm.

(a) How many bricks does Amy add?

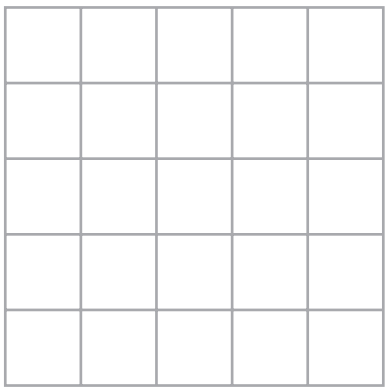
.....

(2)

Naveed uses some of the bricks to make this solid shape.



(b) On the grid below, draw the view of the solid shape from the direction shown by the arrow.

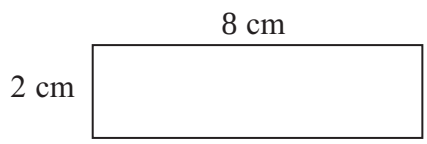


(2)

(Total for Question 211 is 4 marks)

EXPERT TUITION

212 The diagram shows a rectangle and a square.



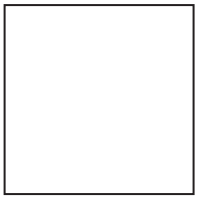


Diagram **NOT** accurately drawn

The perimeter of the rectangle is the same as the perimeter of the square.

Work out the length of one side of the square.

..... cm

(Total for Question 212 is 4 marks)

***213**

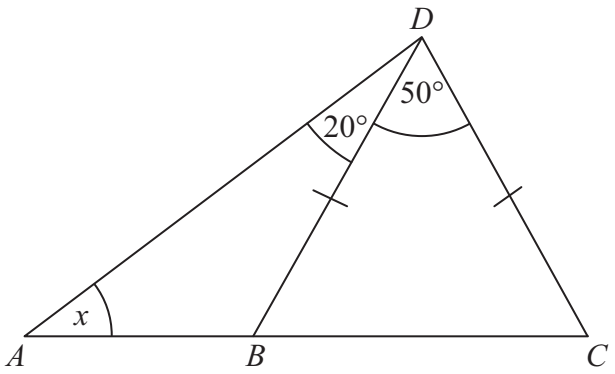


Diagram **NOT** accurately drawn

ABC is a straight line.
BD = *CD*.
Angle *BDC* = 50°.
Angle *ADB* = 20°.

Work out the size of the angle marked *x*.
Give reasons for your answer.

(Total for Question 213 is 4 marks)

EXPERT TUITION

214 The diagram shows a patio in the shape of a rectangle.

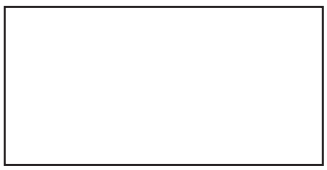


Diagram **NOT** accurately drawn

The patio is 3.6 m long and 3 m wide.

Matthew is going to cover the patio with paving slabs.
Each paving slab is a square of side 60 cm.

Matthew buys 32 of the paving slabs.

(a) Does Matthew buy enough paving slabs to cover the patio?
You must show all your working.

.....

(3)

The paving slabs cost £8.63 each.

(b) Work out the total cost of the 32 paving slabs.

£ .....

(3)

(Total for Question 214 is 6 marks)

EXPERT TUITION

215

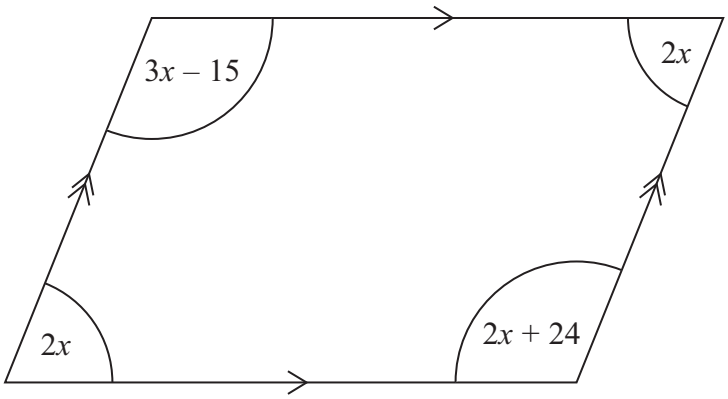


Diagram **NOT** accurately drawn

The diagram shows a parallelogram.
The sizes of the angles, in degrees, are

$2x$
$3x - 15$
$2x$
$2x + 24$

Work out the value of x.

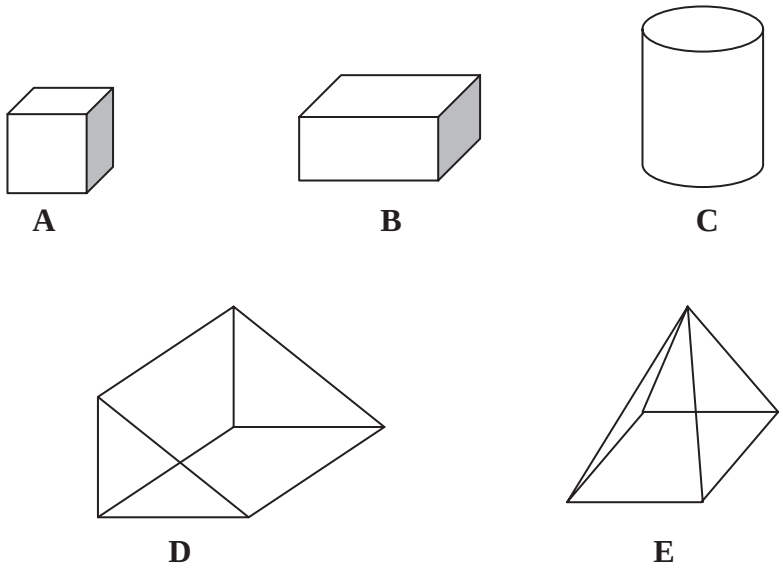
$x =$ .....

(Total for Question 215 is 3 marks)

EXPERT TUITION

216 Ben is planning to make some blocks for a child.

The diagram shows some 3-D shapes.



(a) Write down the mathematical name of the 3-D shape **C**.

(1)

.....

(b) Write down the number of edges on the 3-D shape **D**.

(1)

.....

(c) Write down the letters of all the 3-D shapes that have 5 faces.

(1)

.....

EXPERT TUITION

Ben is going to make one of the boxes, the 3-D shape **B**.
The 3-D shape is to be 4 cm high, 5 cm wide and 6 cm long.

(d) (i) In the space below draw an accurate net of the solid shape **B**.

(ii) Find the length and width of the smallest rectangle of card needed for the net.

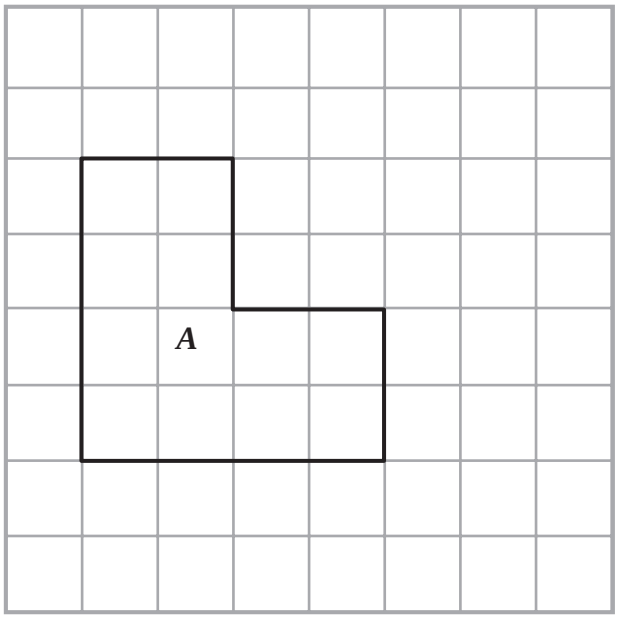
(5)

Smallest width .....

Smallest length .....

(Total for Question 216 is 8 marks)

217



Shape *A* has been drawn on a centimetre grid.

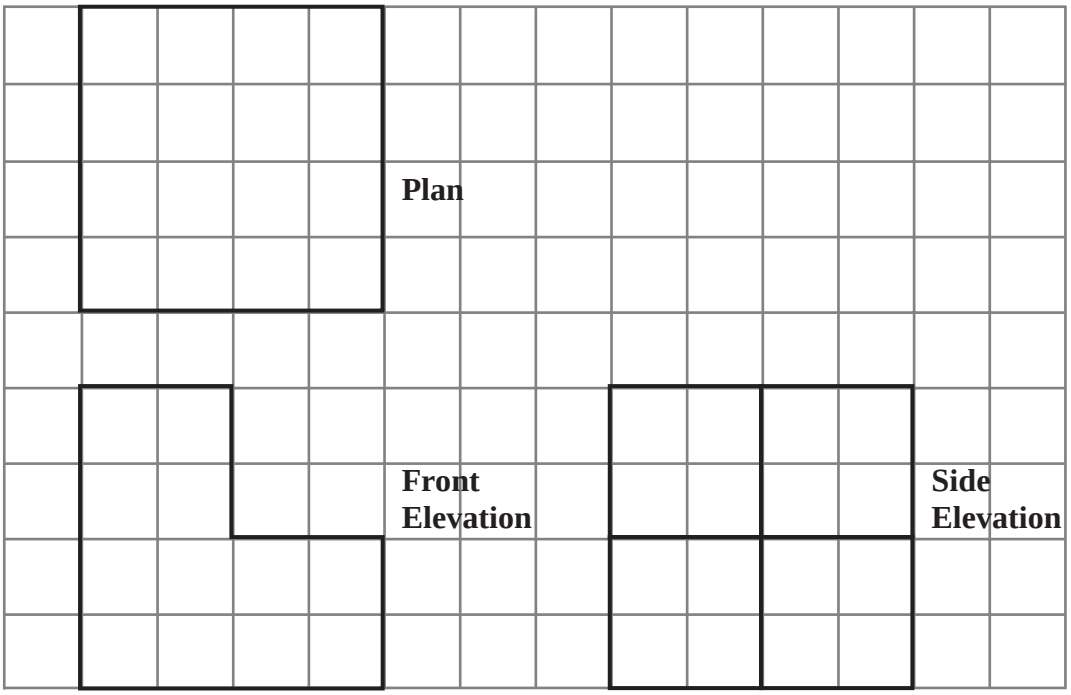
(a) Find the perimeter of shape *A*.

(1)

.....

EXPERT TUITION

The diagram shows the plan, the front elevation and the side elevation of a 3-D solid made from one centimetre cubes drawn full size.



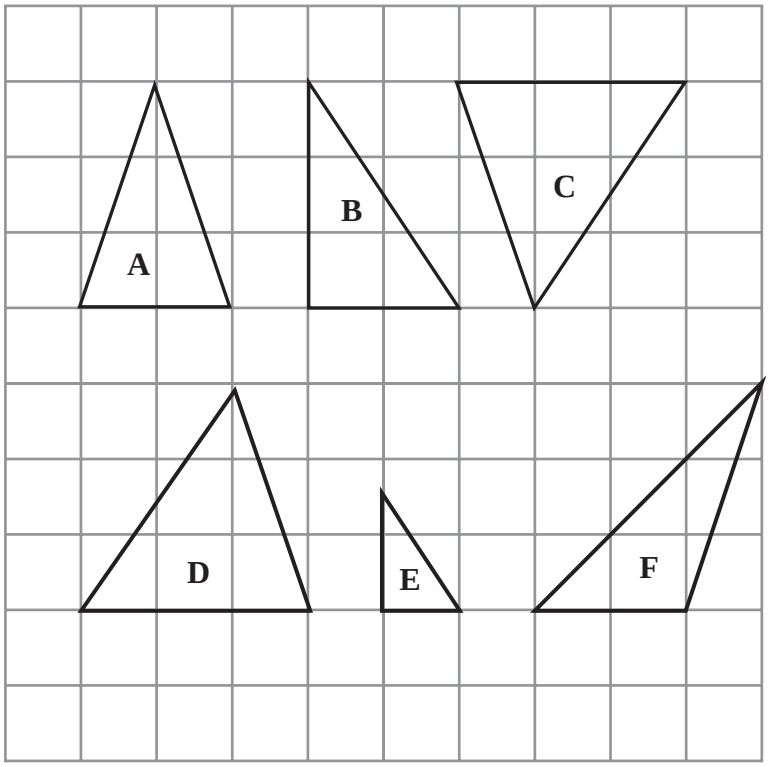
(b) Find the volume of the 3-D shape.

(4)

.....

(Total for Question 217 is 5 marks)

218 These triangles have been drawn on a centimetre grid.



(a) Write down the letters of the **two** triangles that are congruent.

(1)

..... and .....

(b) Write down the letters of **two different** triangles that are similar.

(1)

..... and .....

(c) Find the area of triangle **D**.

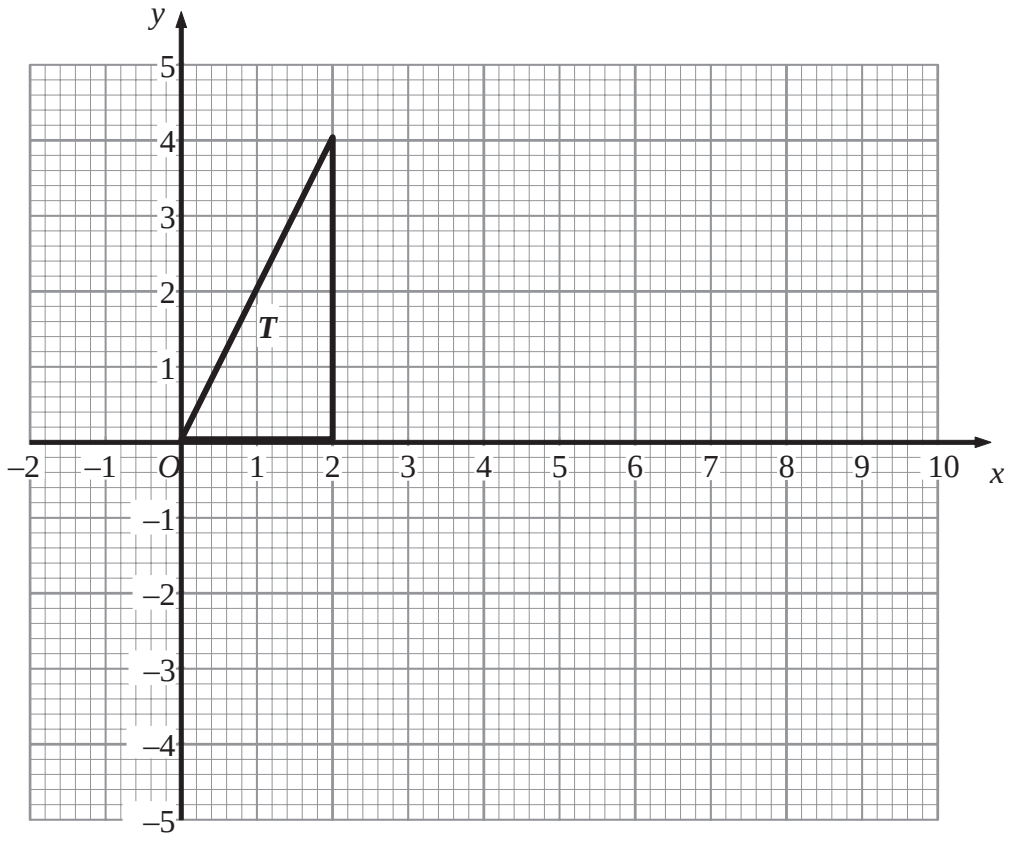
(1)

.....

(Total for Question 218 is 3 marks)

EXPERT TUITION

219



The shape ***T*** is rotated by 180° about the point (3, 0) to give the shape ***U***.

The shape ***U*** is rotated by 180° about the point (6, 0) to give the shape ***V***.

Describe fully the single transformation that will map shape ***T*** to shape ***V***.

.....

.....

(Total for Question 219 is 3 marks)

EXPERT TUITION

220

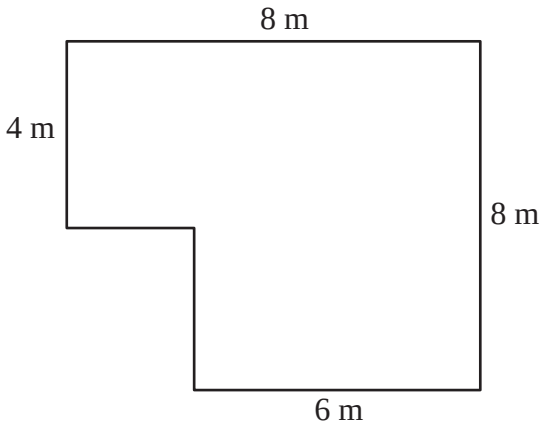


Diagram **NOT** accurately drawn

The diagram is a plan of the floor of Nikola's room.
All the angles are right angles.
Nikola is going to lay flooring to cover all the floor.

She can choose either carpet tiles or wood strips.

Carpet tiles come in packs of 32 and are square. They measure 50 cm by 50 cm.
Wood strips come in packs of 10 and are rectangular. They measure 2 m by 25 cm.

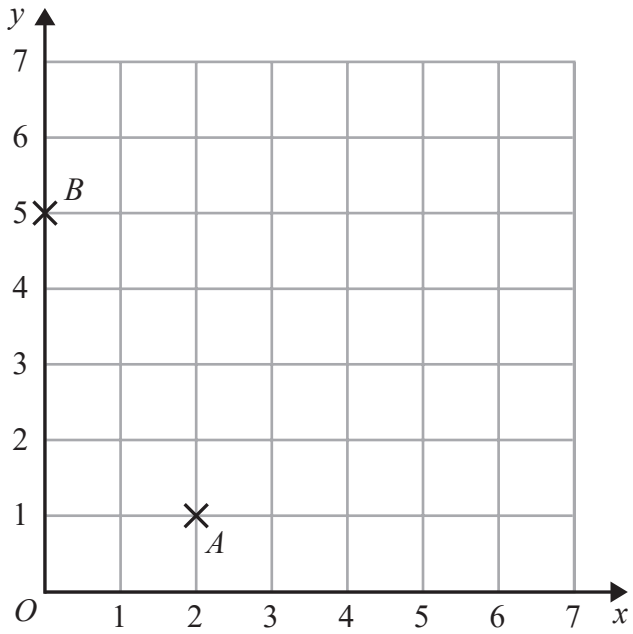
She only wants to use one type of flooring and buy as few packs as she can.
Which type of flooring should she choose?

.....

(Total for Question 220 is 6 marks)

EXPERT TUITION

221



(a) Write down the coordinates of the point A.

(..... , ...)

(1)

(b) Write down the coordinates of the point B.

(..... , ...)

(1)

(c) Write down the coordinates of the midpoint of AB.

(..... , ...)

(1)

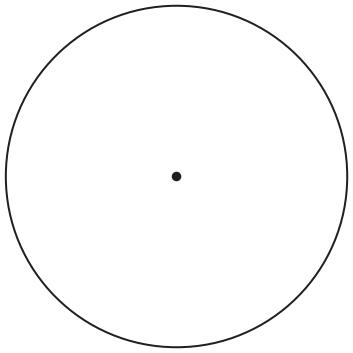
(d) On the grid, mark with a cross ($\times$) a point C so that ABC is an isosceles triangle.
Label this point C.

(1)

(Total for Question 221 is 4 marks)

EXPERT TUITION

222 Here is a circle.

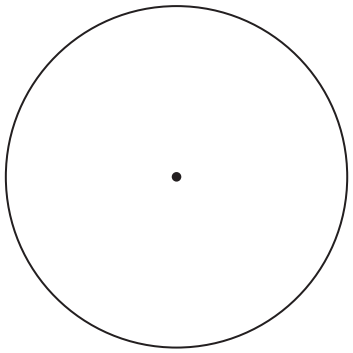


(a) Measure the diameter of the circle.

..... cm

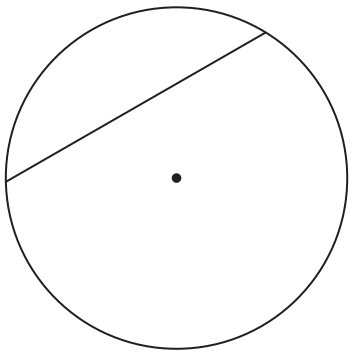
(1)

(b) In the circle below, draw a sector.
Shade your sector.



(1)

(c) Write down the mathematical name of the straight line shown in the diagram below.



.....

(1)

(Total for Question 222 is 3 marks)

EXPERT TUITION

223 The diagram shows an equilateral triangle and a rectangle.

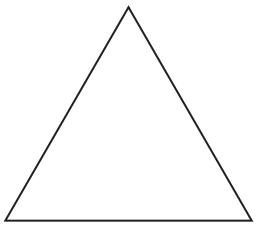


Diagram **NOT** accurately drawn

The perimeter of the equilateral triangle is the same as the perimeter of the rectangle.

The length of the rectangle is 11 cm.

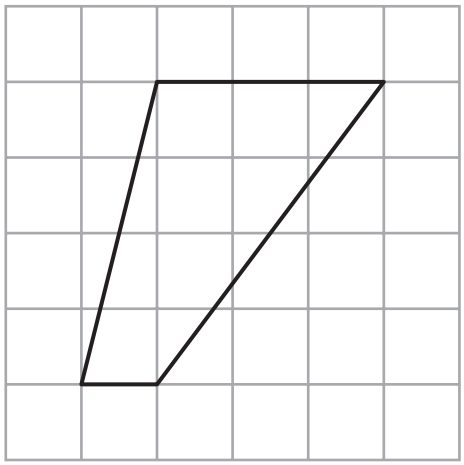
Work out the width of the rectangle.

..... cm

(Total for Question 223 is 3 marks)

EXPERT TUITION

224 A quadrilateral has been drawn on a centimetre grid.



(a) Write down the mathematical name of this quadrilateral.

.....

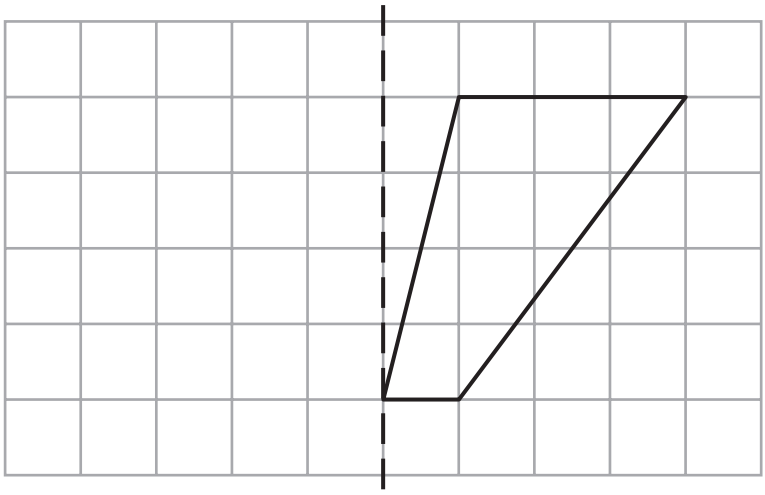
(1)

(b) Work out the area of the quadrilateral.

..... cm^2

(2)

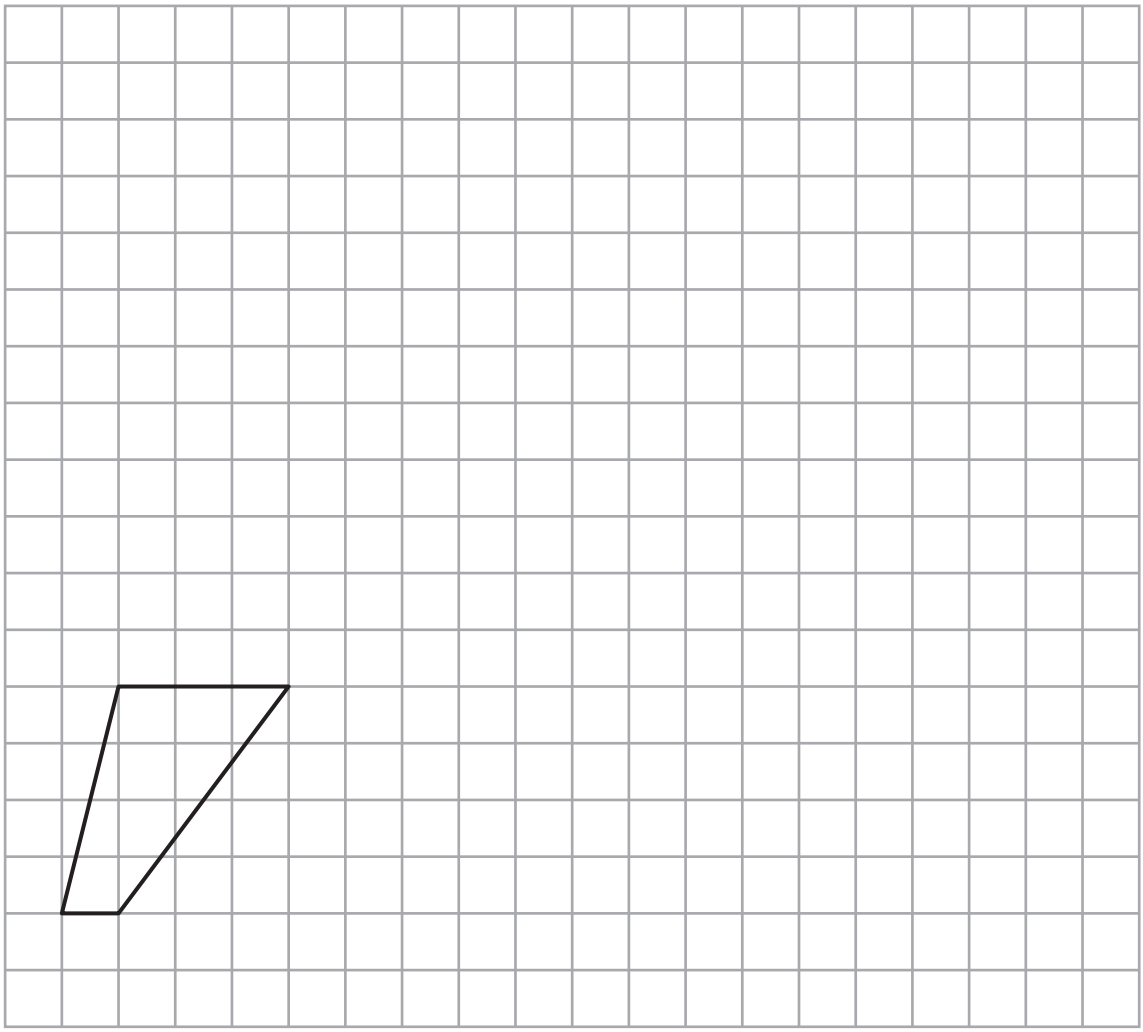
(c) On the grid below, reflect the quadrilateral in the mirror line.



mirror line

(2)

EXPERT TUITION



(d) On the grid, draw an enlargement of the quadrilateral with a scale factor of 3

(2)

(Total for Question 224 is 7 marks)

225 *ABC* is a right-angled triangle.

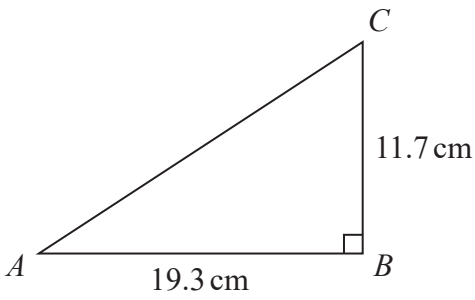


Diagram **NOT** accurately drawn

Calculate the length of *AC*.
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 225 is 3 marks)

EXPERT TUITION

***226** The diagram shows a plan of Brian's lawn.

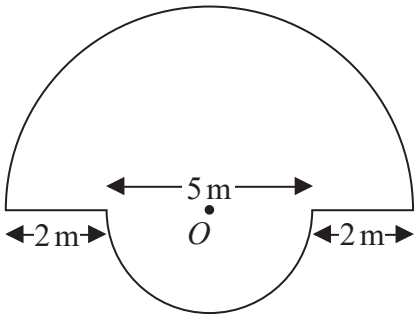


Diagram **NOT** accurately drawn

The edge of the lawn consists of two semicircles and two straight lines.
Each semicircle has centre O.
The diameters of the semicircles are 9 m and 5 m.

Brian is going to put lawn edging around the edge of the lawn.
Lawn edging is sold in 2.4 metre rolls.

Brian has £35

Has Brian got enough money to buy all the rolls of lawn edging he needs?
You must show all your working.

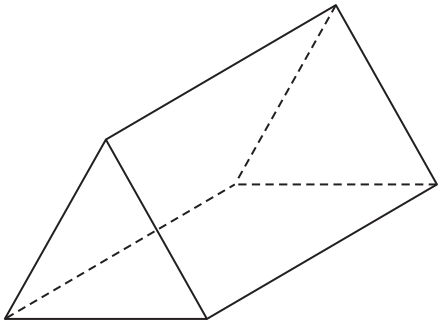
Lawn edging

£3.99 per roll
or
3 rolls for £10

(Total for Question 226 is 5 marks)

EXPERT TUITION

227 The diagram shows a prism.



(a) Write down the number of vertices of the prism.

.....

(1)

The cross section of the prism is an equilateral triangle.

(b) In the space below, draw a sketch of a net for this prism.

(2)

EXPERT TUITION

(c) In the space below, draw accurately an equilateral triangle of side 6.5 cm.

(2)

(Total for Question 227 is 5 marks)

EXPERT TUITION

228

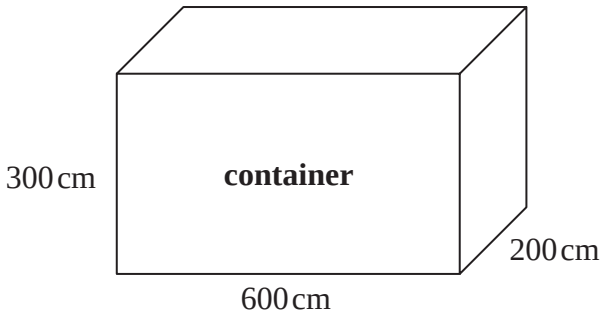
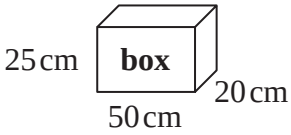


Diagram **NOT** accurately drawn



A company packs boxes into a container.

The container is a cuboid, 600 cm by 300 cm by 200 cm.
Each box is a cuboid, 50 cm by 25 cm by 20 cm.

Work out the largest number of boxes that can be packed into the container.

.....

(Total for Question 228 is 3 marks)

EXPERT TUITION

229

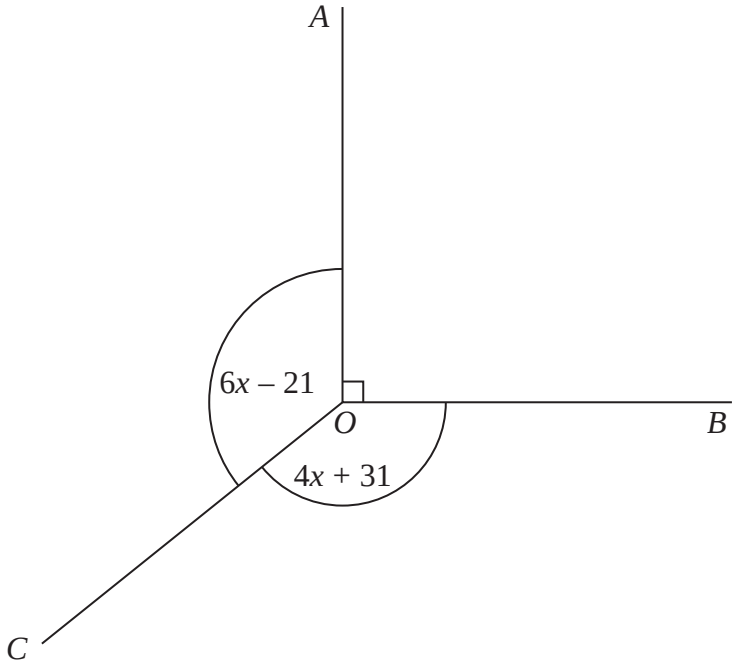


Diagram **NOT** accurately drawn

In the diagram, all angles are in degrees.

Angle *AOB* is a right angle.
Angle *AOC* = Angle *BOC*.

Work out the value of *x*.

.....

(Total for Question 229 is 3 marks)

EXPERT TUITION

230 The diagram shows a square *ABCD* inside a circle.

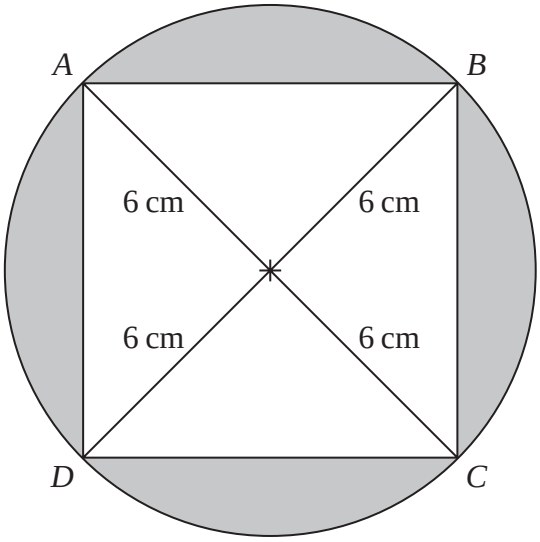


Diagram **NOT** accurately drawn

The points *A*, *B*, *C* and *D* lie on the circle.

The radius of the circle is 6 cm.

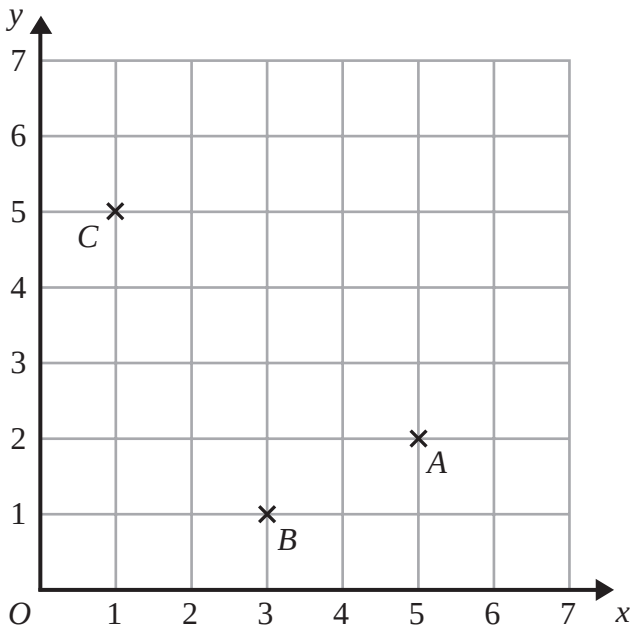
Work out the total area of the shaded regions.
Give your answer correct to 3 significant figures.

..... cm^2

(Total for Question 230 is 4 marks)

EXPERT TUITION

231



(a) Write down the coordinates of point *C*.

(..... , ...)

(1)

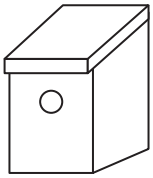
(b) On the grid, mark with a cross (×) the point *D* so that *ABCD* is a rectangle.
Label this point *D*.

(1)

(Total for Question 231 is 2 marks)

EXPERT TUITION

232 Tina is making a nest box for birds.



Tina has marked the six parts she needs on a piece of wood, as shown in the diagram below.

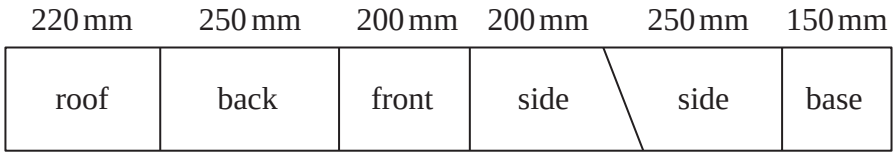


Diagram **NOT** accurately drawn

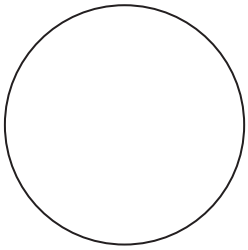
(a) Work out the total length of the six parts.

.....mm

(2)

Tina is going to cut a circular hole in the front of the nest box.

She makes this accurate full size drawing to represent the hole.



(b) Measure the diameter of the hole.

.....

(1)

EXPERT TUITION

Here is a sketch of one side of the nest box.

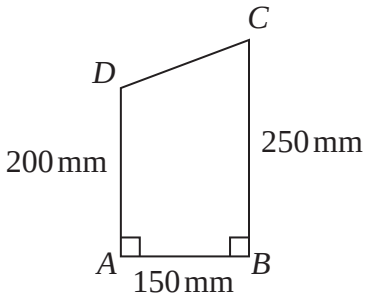


Diagram **NOT** accurately drawn

(c) In the space below, make an accurate scale drawing of this side of the nest box.
Use a scale of 1 cm to 20 mm.
The line *AB* has been drawn for you.

A ——————————————— *B*

(3)

(Total for Question 232 is 6 marks)

EXPERT TUITION

233

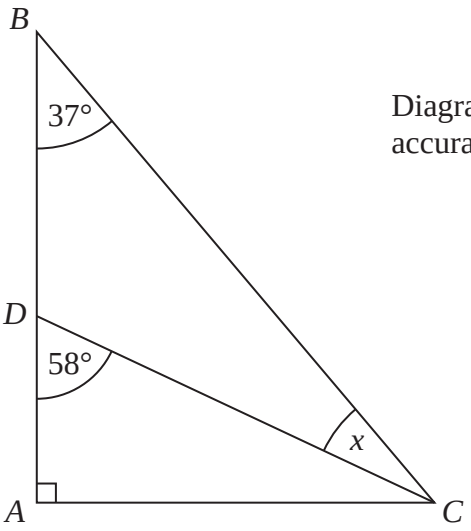


Diagram **NOT** accurately drawn

ABC is a right-angled triangle.
ADB is a straight line.

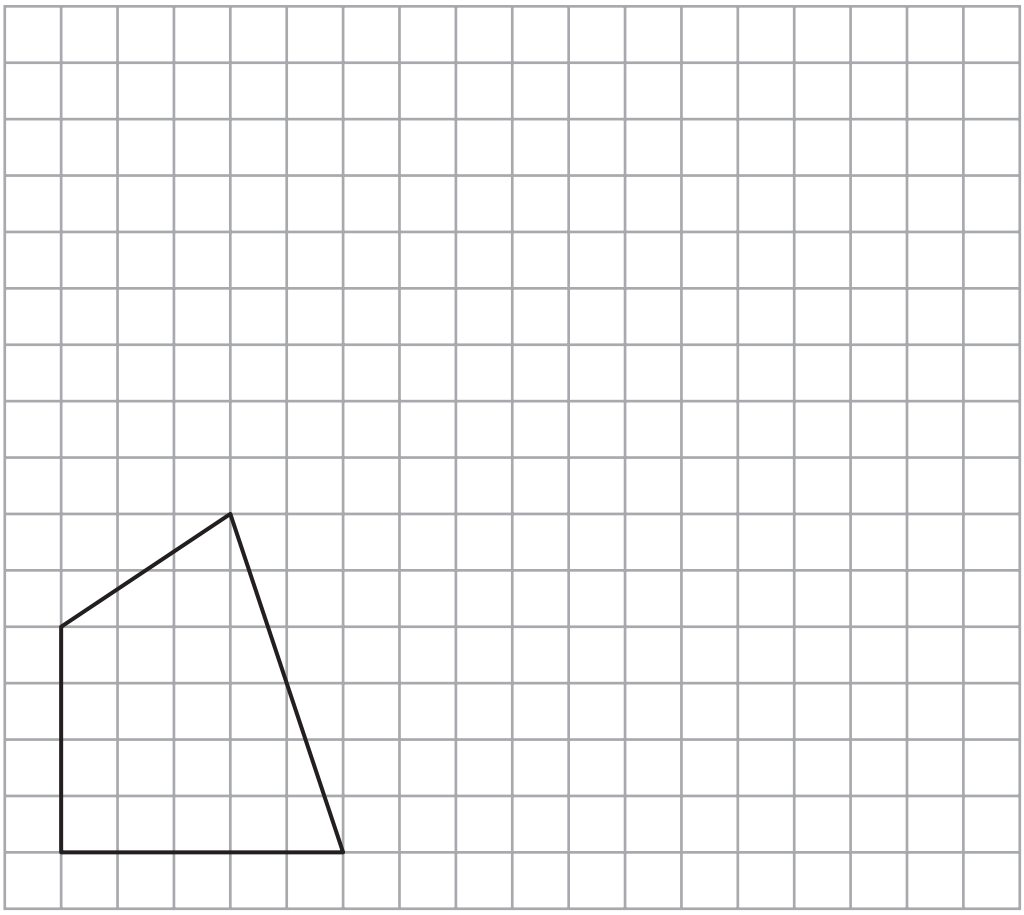
Work out the size of the angle marked *x*.

.....°

(Total for Question 233 is 2 marks)

EXPERT TUITION

234



On the grid, draw an enlargement of the shape with a scale factor of 2

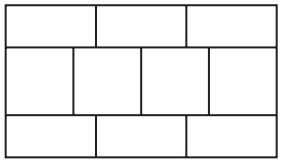
(Total for Question 234 is 2 marks)

EXPERT TUITION

235 James has some square paving stones and some rectangular paving stones.

Diagram **NOT** accurately drawn

He uses four square paving stones and six rectangular paving stones to make this pattern in the shape of a rectangle.



Each rectangular paving stone is 60 cm by 30 cm.

(a) Work out the length of one side of a square paving stone.

..... cm

(2)

Sally is going to make a path with rectangular paving stones.
Each paving stone is 60 cm by 30 cm.

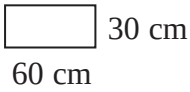
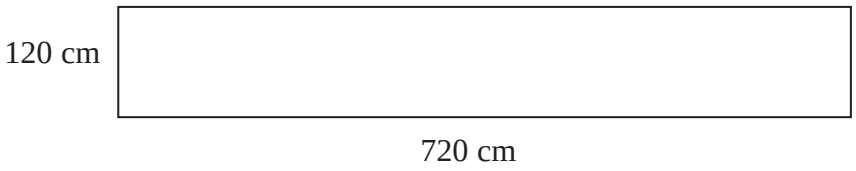


Diagram **NOT** accurately drawn

The path will be 720 cm long and 120 cm wide.



(b) Work out how many paving stones Sally needs to make the path.

.....

(3)

(Total for Question 235 is 5 marks)

EXPERT TUITION

236 The diagram shows a rectangle.

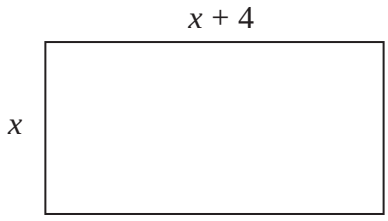


Diagram **NOT** accurately drawn

All measurements are given in centimetres.

The perimeter of the rectangle is 45 cm.

Work out the value of x.

x = ...

(Total for Question 236 is 3 marks)

EXPERT TUITION

*237

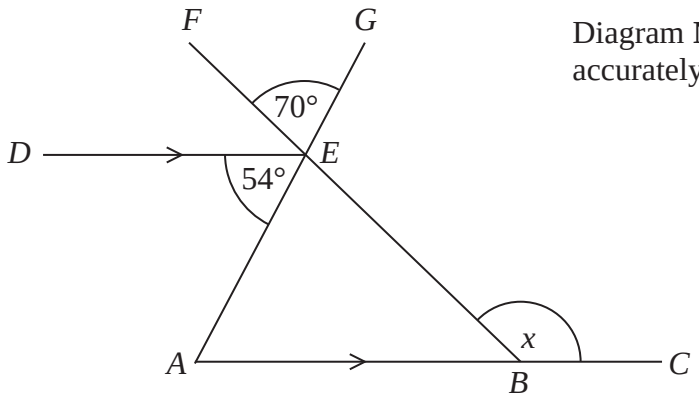


Diagram **NOT** accurately drawn

ABC and *DE* are parallel lines.
AEG and *BEF* are straight lines.

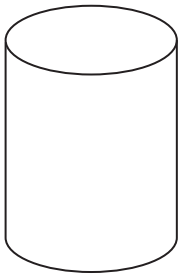
Angle *AED* = 54°
Angle *FEG* = 70°

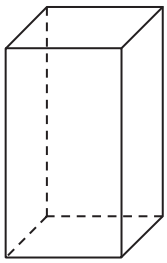
Work out the size of the angle marked *x*.
Give a reason for each stage of your working.

(Total for Question 237 is 4 marks)

EXPERT TUITION

238 Write down the mathematical name of each of these 3-D shapes.





(i) .....

(ii) .....

(Total for Question 238 is 2 marks)

EXPERT TUITION

239 (a) Draw an angle of 40° at the point *P*.

(1)

(b) Construct an equilateral triangle with sides of length 6 cm.

(2)

(Total for Question 239 is 3 marks)

EXPERT TUITION

240

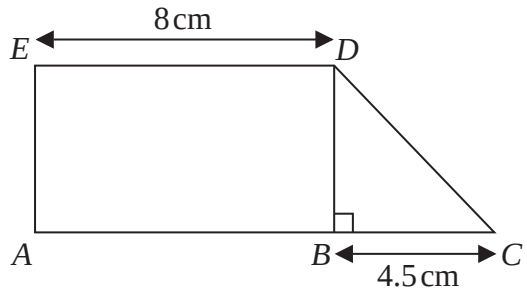


Diagram **NOT** accurately drawn

ABDE is a rectangle.
ED is 8 cm.

BDC is a right-angled triangle.
BC is 4.5 cm.

ABC is a straight line.

The area of the rectangle *ABDE* is 40 cm^2.
Work out the area of the triangle *BDC*.

..... cm^2

(Total for Question 240 is 3 marks)

EXPERT TUITION

*241 Here is part of a field.

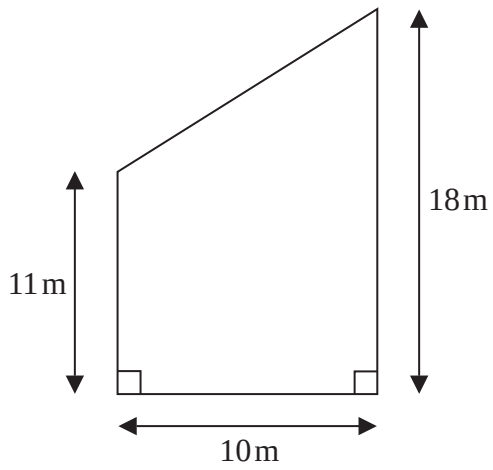


Diagram **NOT** accurately drawn

This part of the field is in the shape of a trapezium.
A farmer wants to put a fence all the way around the edge of this part of the field.

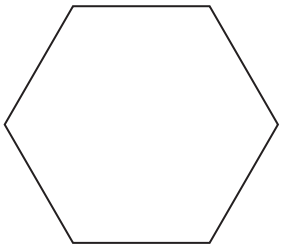
The farmer has 50 m of fence.

Does he have enough fence?
You must show all your working.

(Total for Question 241 is 5 marks)

EXPERT TUITION

242



(a) Write down the mathematical name of this polygon.

.....

(1)

(b) How many sides has an octagon?

.....

(1)

(Total for Question 242 is 2 marks)

EXPERT TUITION

243 Here is a triangle.

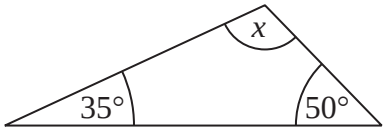


Diagram **NOT** accurately drawn

(a) (i) Work out the size of the angle marked x.

.....°

(ii) Give a reason for your answer.

.....

.....

(2)

Here is a different triangle.

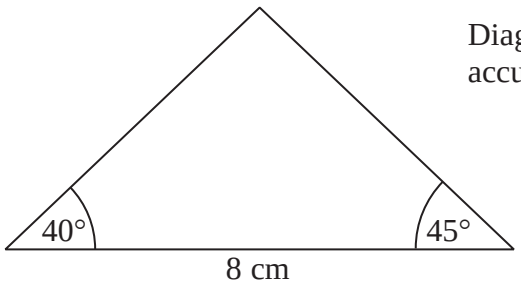


Diagram **NOT** accurately drawn

(b) In the space below, make an accurate drawing of this triangle.

(3)

(Total for Question 243 is 5 marks)

EXPERT TUITION

***244** The diagram shows the top of Levi's birthday cake.

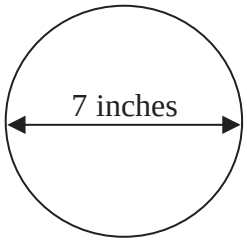


Diagram **NOT** accurately drawn

The top of the cake is in the shape of a circle.
The diameter of the circle is 7 inches.

A ribbon is going to be put around the side of the cake.
Ribbons are sold in 50 cm lengths.

1 inch is 2.54 cm.

Work out if one length of ribbon is long enough to go all the way around the cake.
You must show your working.

(Total for Question 244 is 4 marks)

EXPERT TUITION

245 A frame is made from wire.

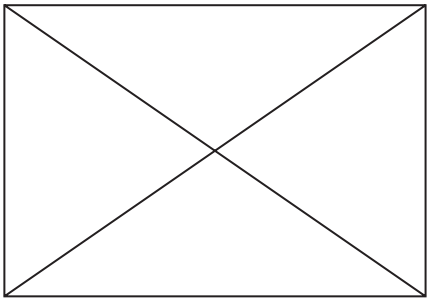


Diagram **NOT** accurately drawn

The frame is in the shape of a rectangle, 30 cm by 20 cm.
The two diagonals of the rectangle are also made from wire.

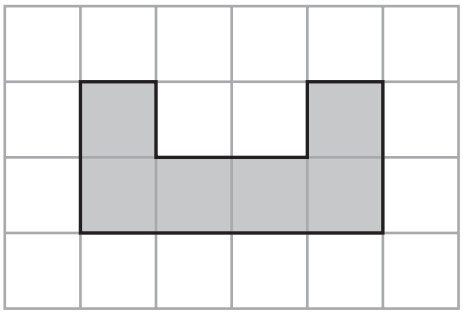
Calculate the total length of wire needed to make the frame and the diagonals.
Give your answer correct to 1 decimal place.

..... cm

(Total for Question 245 is 4 marks)

EXPERT TUITION

246 Here is a shaded shape on a centimetre grid.



(a) Find the area of the shaded shape.

.....cm^2

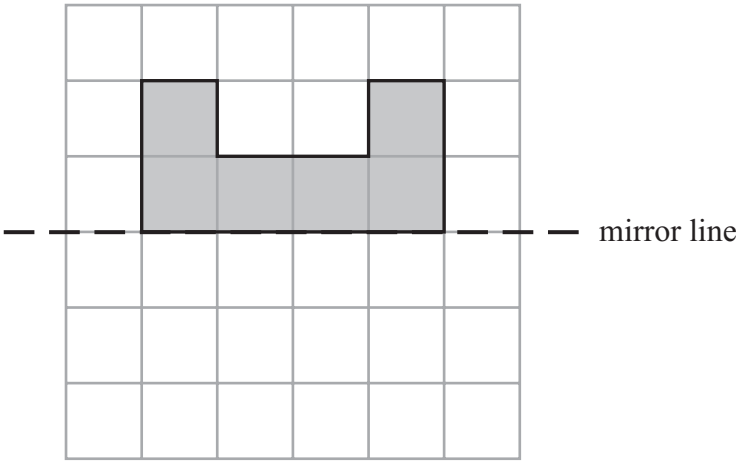
(1)

(b) Find the perimeter of the shaded shape.

.....cm

(1)

(c) On the grid below, reflect the shaded shape in the mirror line.

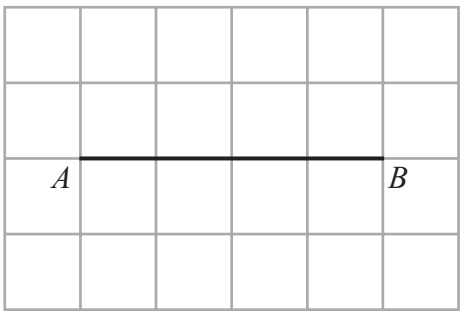


(1)

(Total for Question 246 is 3 marks)

EXPERT TUITION

247 (a) On the grid below, draw a line that is perpendicular to the line AB.



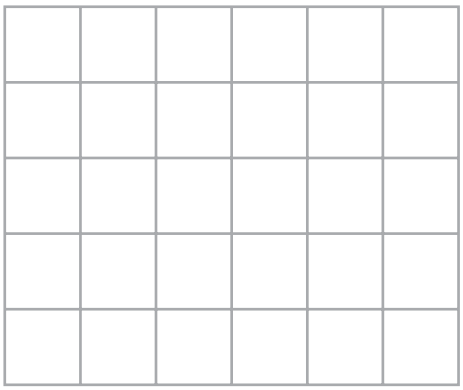
(1)

(b) In the space below, draw accurately a circle of radius 4 cm.
Use the point C as the centre of your circle.

(1)

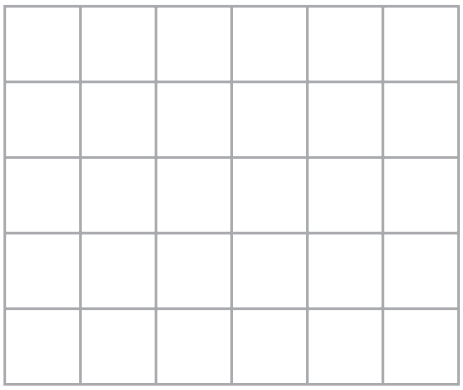
EXPERT TUITION

(c) On the grid below, draw an isosceles triangle.



(1)

(d) On the grid below, draw a quadrilateral with exactly 2 right angles.

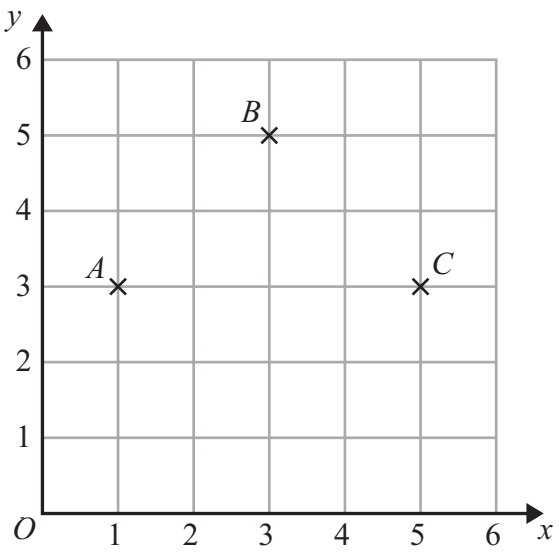


(1)

(Total for Question 247 is 4 marks)

EXPERT TUITION

248



(a) Write down the coordinates of point C.

(..... , ...)

(1)

(b) Write down the coordinates of the midpoint of AB.

(..... , ...)

(1)

(c) On the grid, mark with a cross (×) the point D so that $ABCD$ is a square.
Label this point D.

(1)

(Total for Question 248 is 3 marks)

EXPERT TUITION

249 Amy is making a shelf unit for her DVDs.

She needs

3 pieces of wood of length 32 cm
and 2 pieces of wood of length 45 cm.

Amy has a piece of wood of length 2 metres.
She cuts the 5 pieces of wood she needs from the 2 metre length of wood.

(a) What length of wood does Amy have left from the 2 metre length?

.....

(3)

The diagram shows the shelf unit.

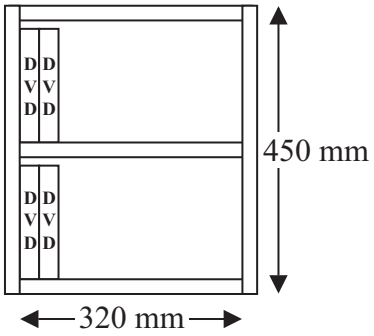
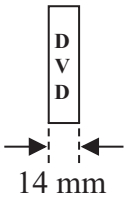


Diagram **NOT** accurately drawn



Amy will put DVDs on the 2 shelves, as shown in the diagram.
Each DVD has a width of 14 mm.

(b) What is the greatest number of DVDs Amy can put on the 2 shelves?

.....

(3)

(Total for Question 249 is 6 marks)

EXPERT TUITION

250

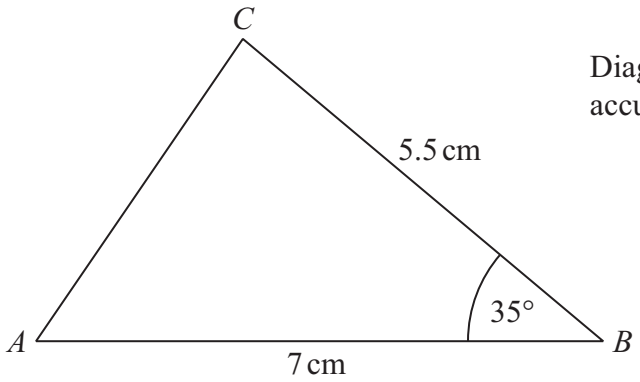
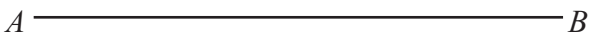


Diagram **NOT** accurately drawn

Make an accurate drawing of this triangle.
The line AB has been drawn for you.



(Total for Question 250 is 2 marks)

EXPERT TUITION

***251**

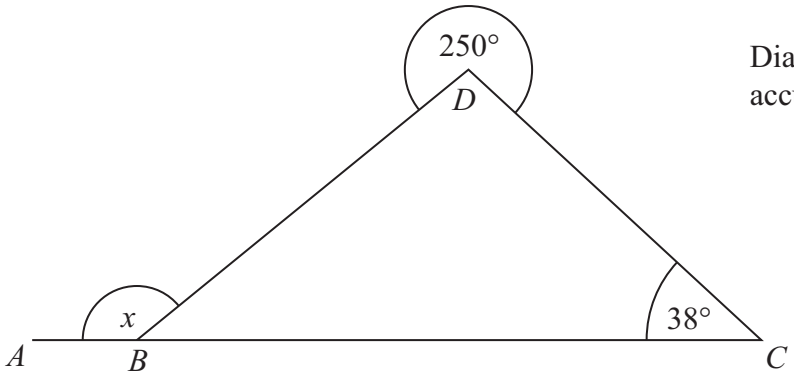


Diagram **NOT** accurately drawn

ABC is a straight line.
Angle *BCD* = 38°
The reflex angle *BDC* = 250°

Work out the size of the angle marked *x*.
Give reasons for your answer.

(Total for Question 251 is 4 marks)

EXPERT TUITION

252 Here is a rectangle.

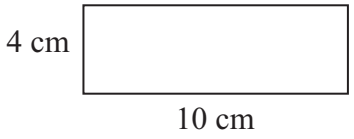
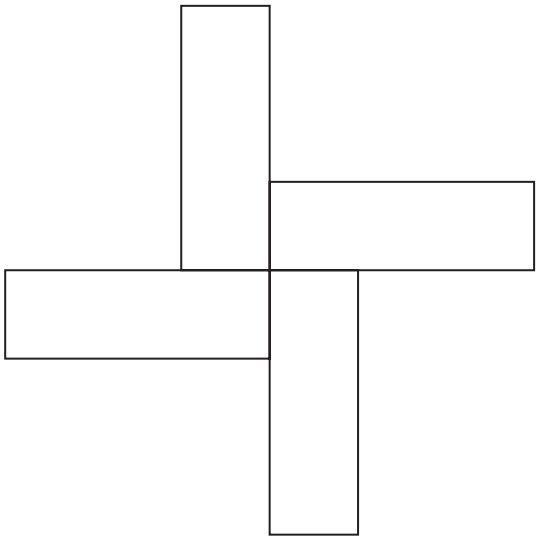


Diagram **NOT** accurately drawn

The 12-sided shape below is made from 4 of these rectangles.



Work out the perimeter of the shape.

.....cm

(Total for Question 252 is 3 marks)

EXPERT TUITION

***253** Saphia is organising a conference.
People at the conference will sit at circular tables.

Diagram **NOT** accurately drawn

Each table has a diameter of 140 cm.
Each person needs 60 cm around the circumference of the table.

There are 12 of these tables in the conference room.
A total of 90 people will be at the conference.

Are there enough tables in the conference room?

(Total for Question 253 is 4 marks)

EXPERT TUITION

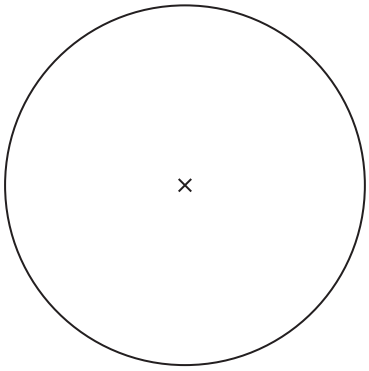
254 (a) In the space below, draw a straight line 10 cm long.

(1)

(b) Mark with a cross (×), the midpoint of the line below.

(1)

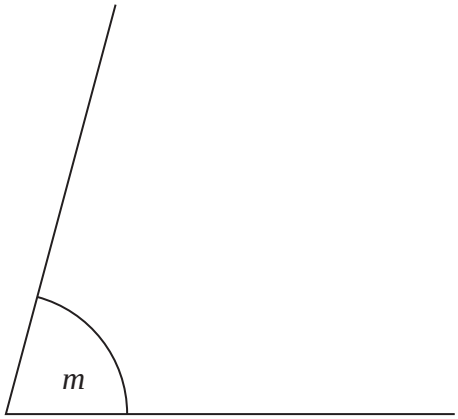
Here is a diagram of a circle, with centre marked ×.



(c) On the diagram, draw a radius of the circle.

(1)

(d) Measure the size of angle *m*.



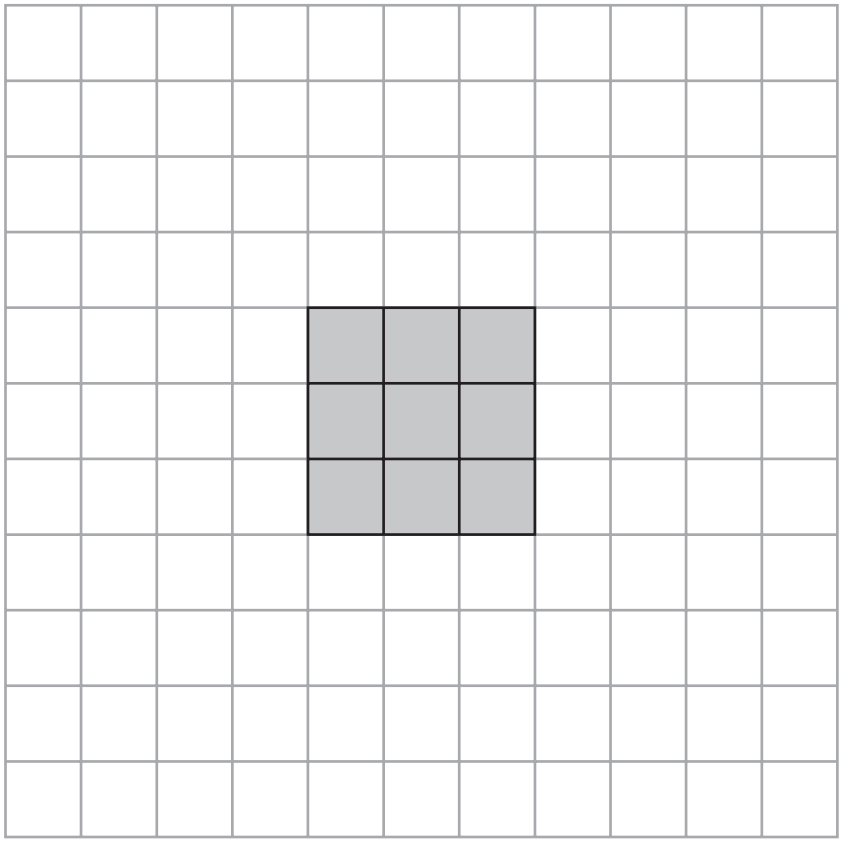
.....°

(1)

(Total for Question 254 is 4 marks)

EXPERT TUITION

255 A square of side 3 cm is made from nine squares of side 1 cm.



(a) How many **more** squares of side 1 cm are needed to make a square of side 6 cm?

.....

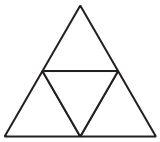
(2)

EXPERT TUITION

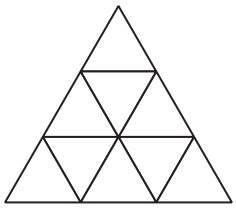
Here is a tile.

Here is a sequence of patterns made from these tiles.

Pattern number 1



Pattern number 2



Pattern number 3

(b) How many of these tiles are needed to make Pattern number 7?

.....

(2)

(Total for Question 255 is 4 marks)

EXPERT TUITION

256 The diagram shows a garden with 4 flower beds.
The garden is a rectangle, 23 m by 17 m.

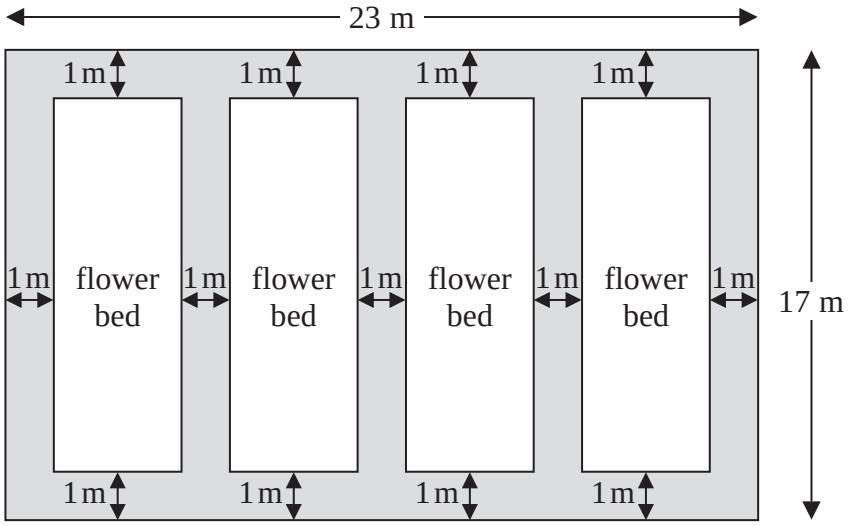


Diagram **NOT** accurately drawn

Each flower bed is a rectangle with the same length and the same width.

Work out the length and the width of a flower bed.

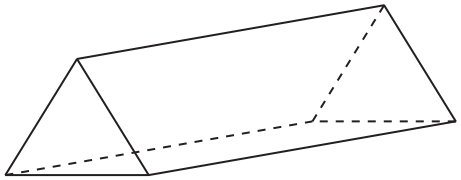
length = ... m

width = ... m

(Total for Question 256 is 3 marks)

EXPERT TUITION

257 Here is a triangular prism.



(a) For this prism, write down

(i) the number of edges

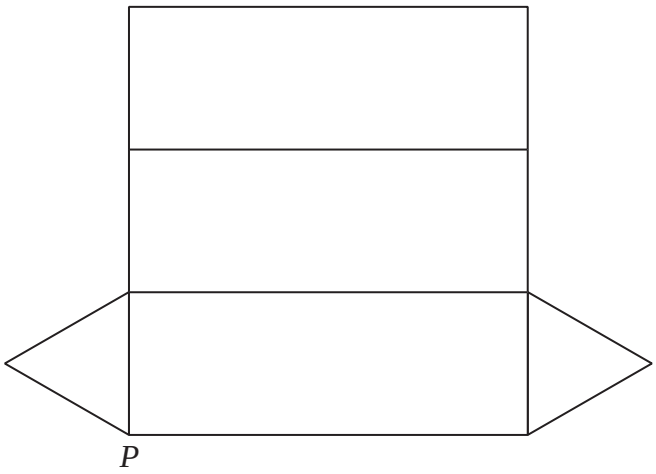
.....

(ii) the number of faces

.....

(2)

Here is a net of the triangular prism.



The net is folded to make the prism.
One other point meets at *P*.

(b) Mark this point on the net with the letter *P*.

(1)

(Total for Question 257 is 3 marks)

EXPERT TUITION

258 The diagram shows a trapezium.

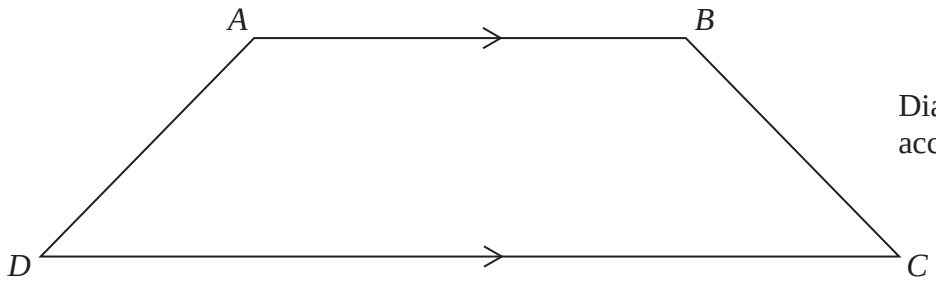


Diagram **NOT** accurately drawn

$AD = x$ cm.
BC is the same length as AD.
AB is twice the length of AD.
DC is 4 cm longer than AB.

The perimeter of the trapezium is 38 cm.

Work out the length of AD.

..... cm

(Total for Question 258 is 4 marks)

EXPERT TUITION

259 Here is a right-angled triangle.

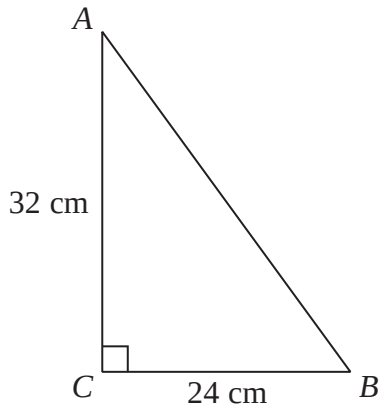


Diagram **NOT** accurately drawn

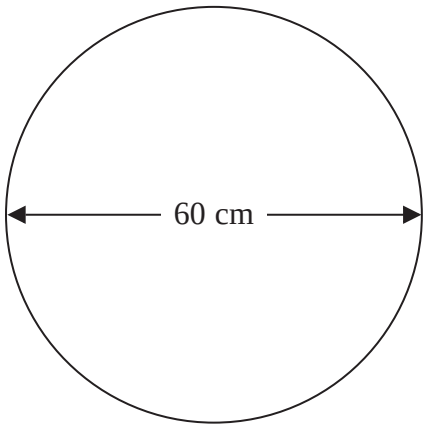
(a) Work out the length of *AB*.

..... cm

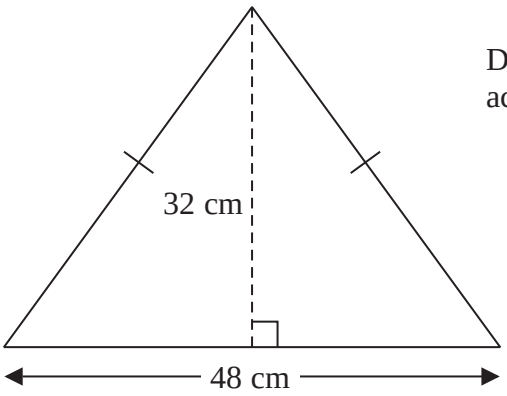
(3)

EXPERT TUITION

Inderpal is making two mirrors.



Mirror **A**



Mirror **B**

Diagram **NOT** accurately drawn

Mirror **A** is in the shape of a circle.
This mirror has a diameter of 60 cm.

Mirror **B** is in the shape of an isosceles triangle.
This mirror has base 48 cm and height 32 cm.

Inderpal buys metal strips to put around the edge of each mirror.
The metal strip is sold in lengths of one metre.
Each one metre length of metal strip costs £5.68

(b) Work out the total amount Inderpal pays.
You must show all your working.

£.....

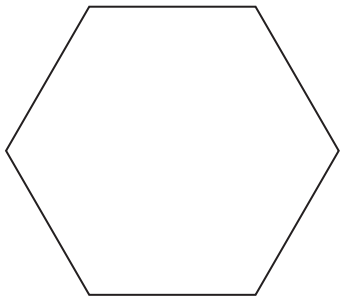
(4)

(Total for Question 259 is 7 marks)

EXPERT TUITION

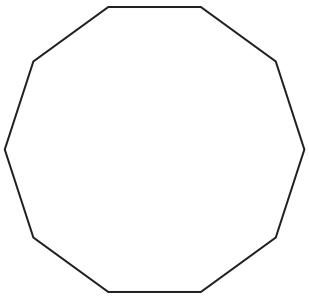
260 Write down the mathematical name of each of these polygons.

(i)



.....

(ii)

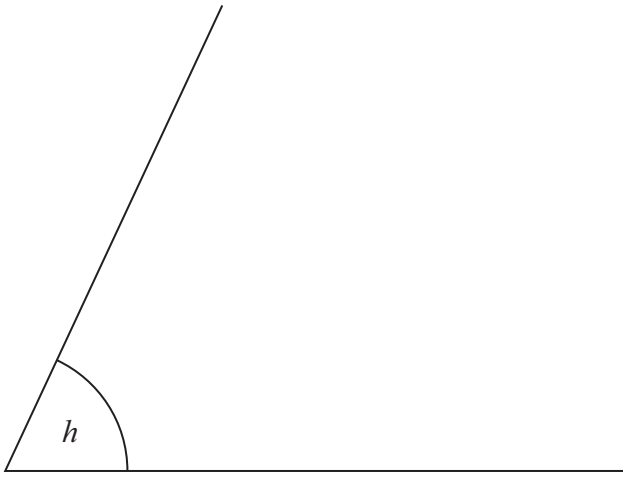


.....

(Total for Question 260 is 2 marks)

EXPERT TUITION

261



(a) (i) What type of angle is angle h ?

.....

(ii) Measure the size of angle h.

..... °

(2)

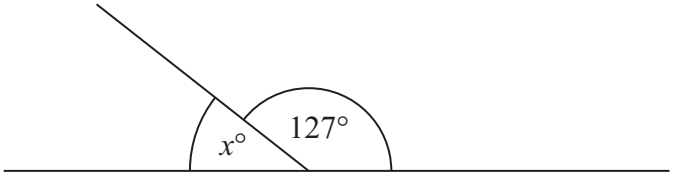


Diagram **NOT** accurately drawn

(b) (i) Work out the value of x.

$x =$ .....

(ii) Give a reason for your answer.

.....

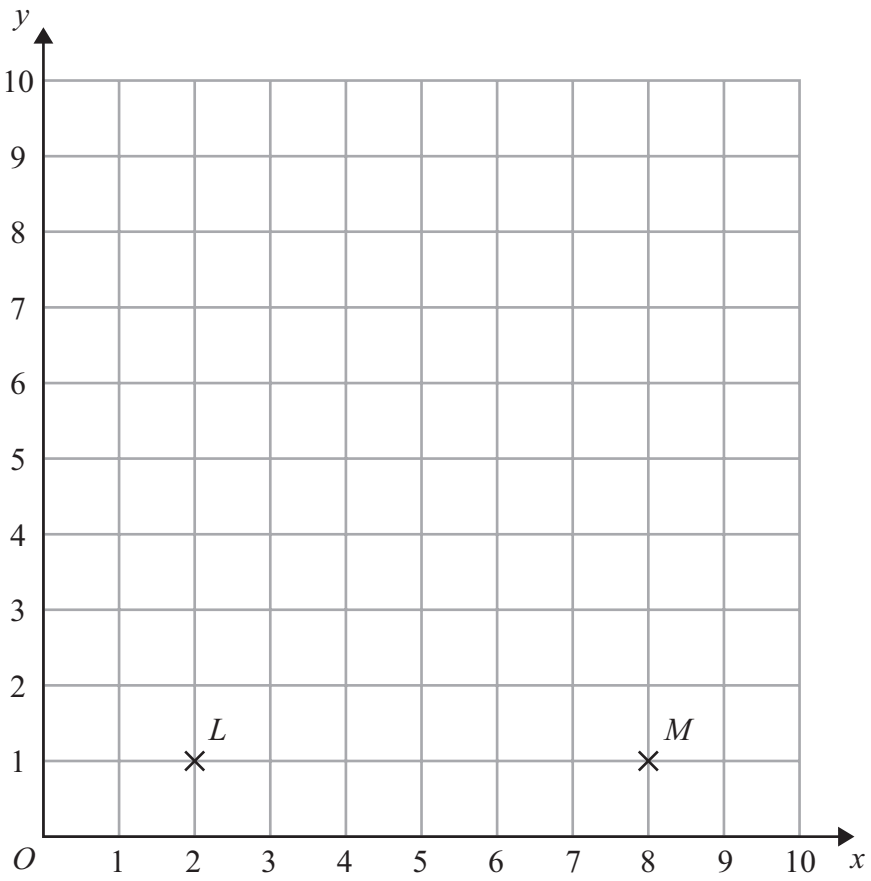
.....

(2)

(Total for Question 261 is 4 marks)

EXPERT TUITION

262 Here is a coordinate grid.



(a) Write down the coordinates of the point M.

(..... , ...)

(1)

LM is the shortest side of an isosceles triangle.

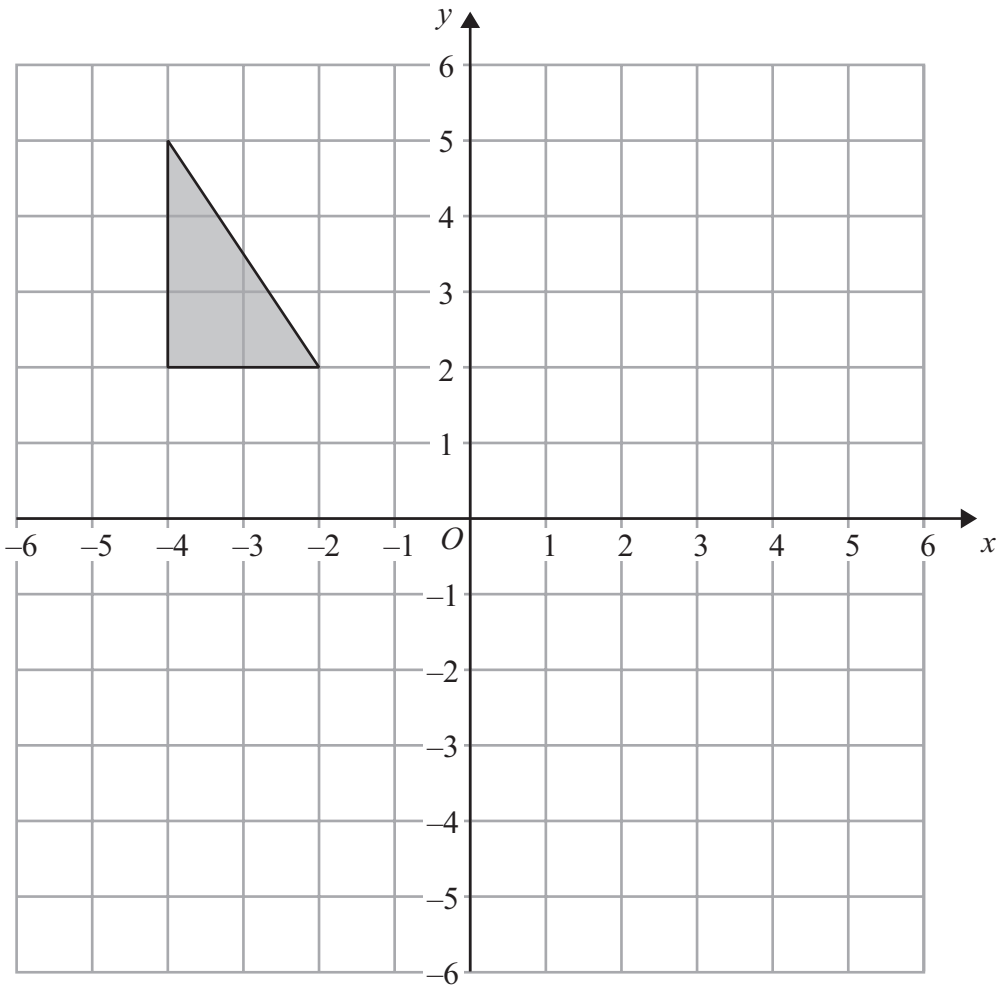
(b) Mark with a cross (×) a point N, so that LNM is an isosceles triangle.

(2)

(Total for Question 262 is 3 marks)

EXPERT TUITION

263



Reflect the shaded triangle in the *y*-axis.

(Total for Question 263 is 2 marks)

EXPERT TUITION

264 The diagram shows a pattern using four identical rhombuses.

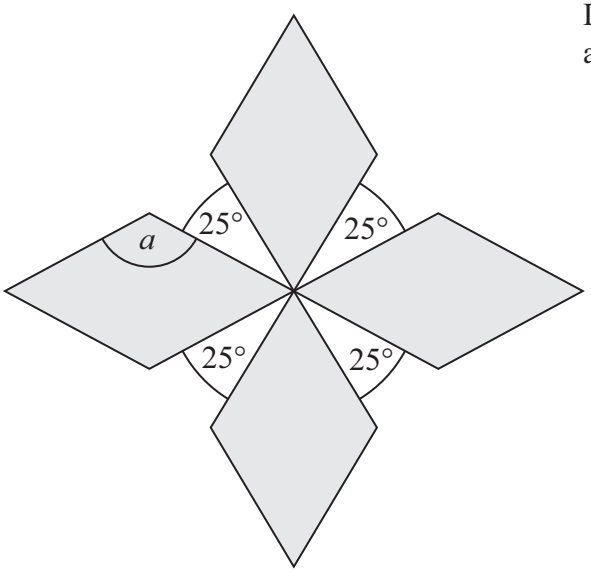


Diagram **NOT** accurately drawn

Work out the size of the angle marked *a*.
You must show your working.

.....°

(Total for Question 264 is 4 marks)

EXPERT TUITION

265 A circle has a diameter of 140 cm.

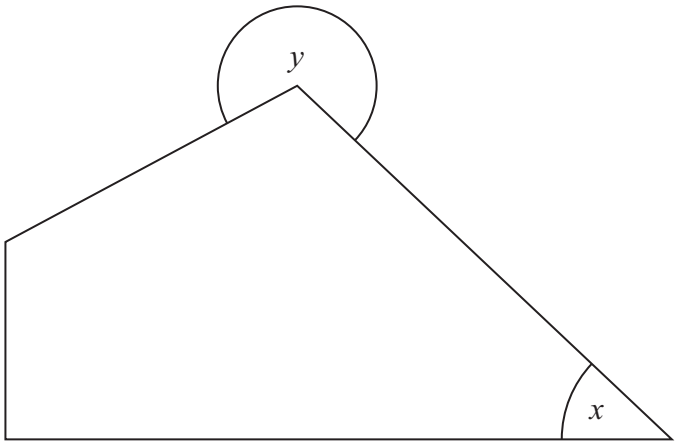
Work out the circumference of the circle.
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 265 is 2 marks)

EXPERT TUITION

266



(a) (i) On this diagram mark, with a letter R, a right angle.

(ii) What type of angle is angle x?

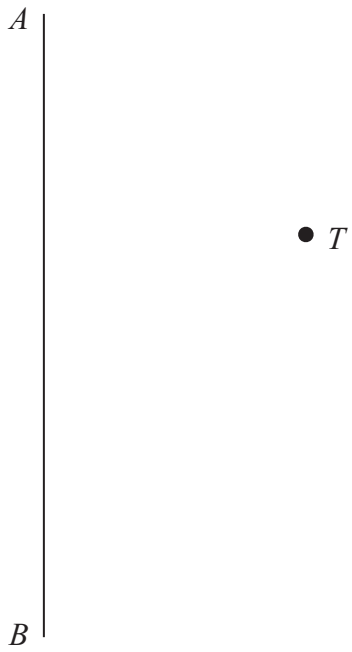
.....

(iii) What type of angle is angle y?

.....

(3)

(b) AB is a straight line.



Draw a line from the point T perpendicular to the line AB.

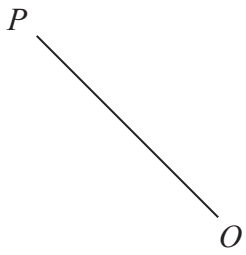
(1)

(Total for Question 266 is 4 marks)

EXPERT TUITION

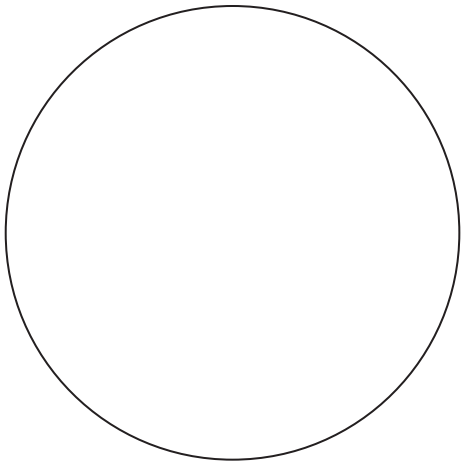
267 The line OP is a radius of a circle, centre O.

(a) Draw accurately the circle.



(1)

(b) On the circle below, draw a chord.



(1)

(Total for Question 267 is 2 marks)

EXPERT TUITION

268 The diagram shows the distances, in kilometres, between some towns, by road.

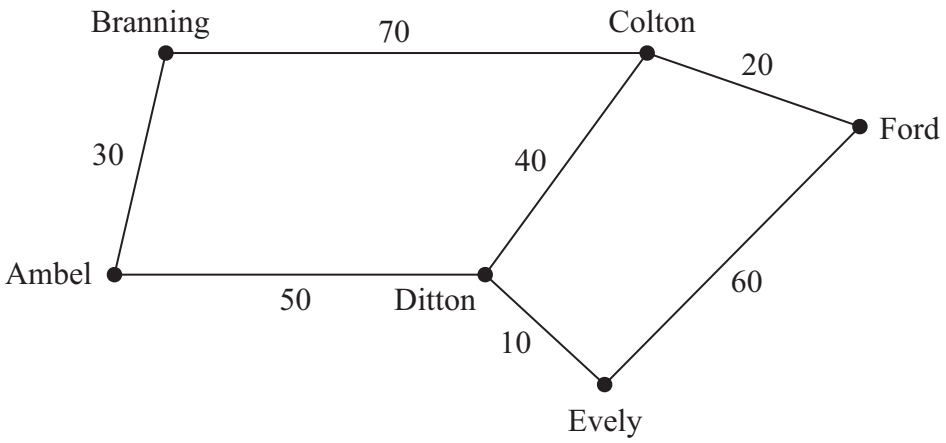


Diagram **NOT** accurately drawn

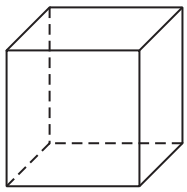
Work out the shortest distance between Ambel and Ford by road.

..... km

(Total for Question 268 is 2 marks)

EXPERT TUITION

269 Here is a cube.

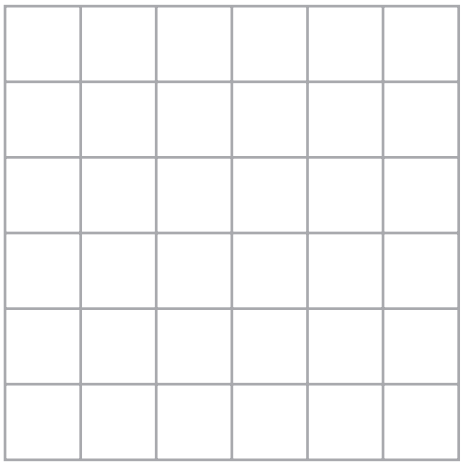


(a) How many vertices does a cube have?

.....

(1)

(b) On the grid, draw a net of a cube.



(2)

The diagram shows a cube of side 3 cm.

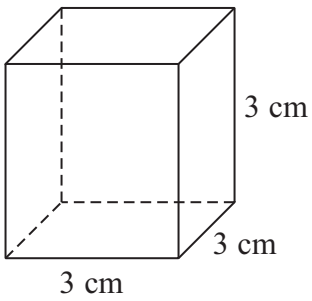


Diagram **NOT** accurately drawn

(c) Work out the total surface area of this cube.

..... cm^2

(2)

(Total for Question 269 is 5 marks)

EXPERT TUITION

270 A picture is made from tiles.

The diagram shows the picture in the shape of a rectangle, 120 cm by 100 cm.
It also shows a tile in the shape of a rectangle, 15 cm by 20 cm.

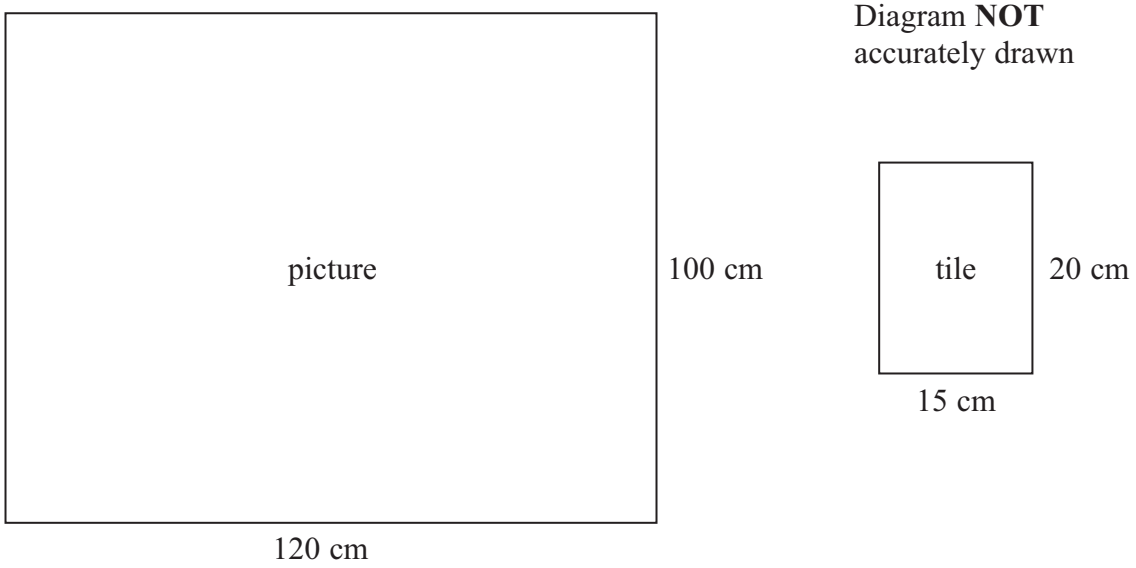


Diagram **NOT** accurately drawn

Work out the number of these tiles needed to make the picture.

.....

(3)

(Total for Question 270 is 3 marks)

EXPERT TUITION

***271**

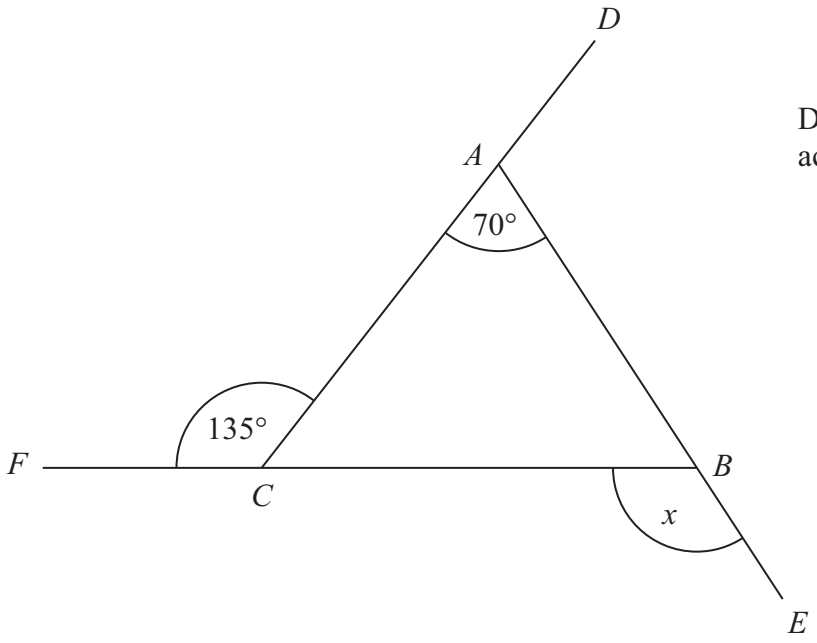


Diagram **NOT** accurately drawn

DAC, *FCB* and *ABE* are straight lines.

Work out the size of the angle marked *x*.
You must give reasons for your answer.

(Total for Question 271 is 5 marks)

EXPERT TUITION

272 *XYZ* is a right-angled triangle.

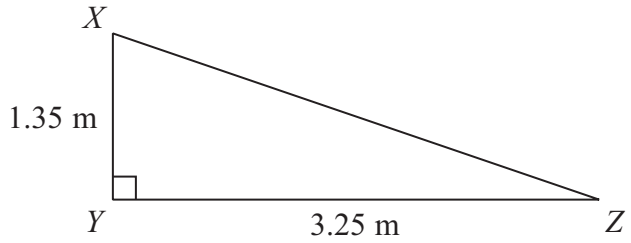


Diagram **NOT** accurately drawn

Calculate the length of *XZ*.
Give your answer correct to 3 significant figures.

..... m

(Total for Question 272 is 3 marks)

EXPERT TUITION

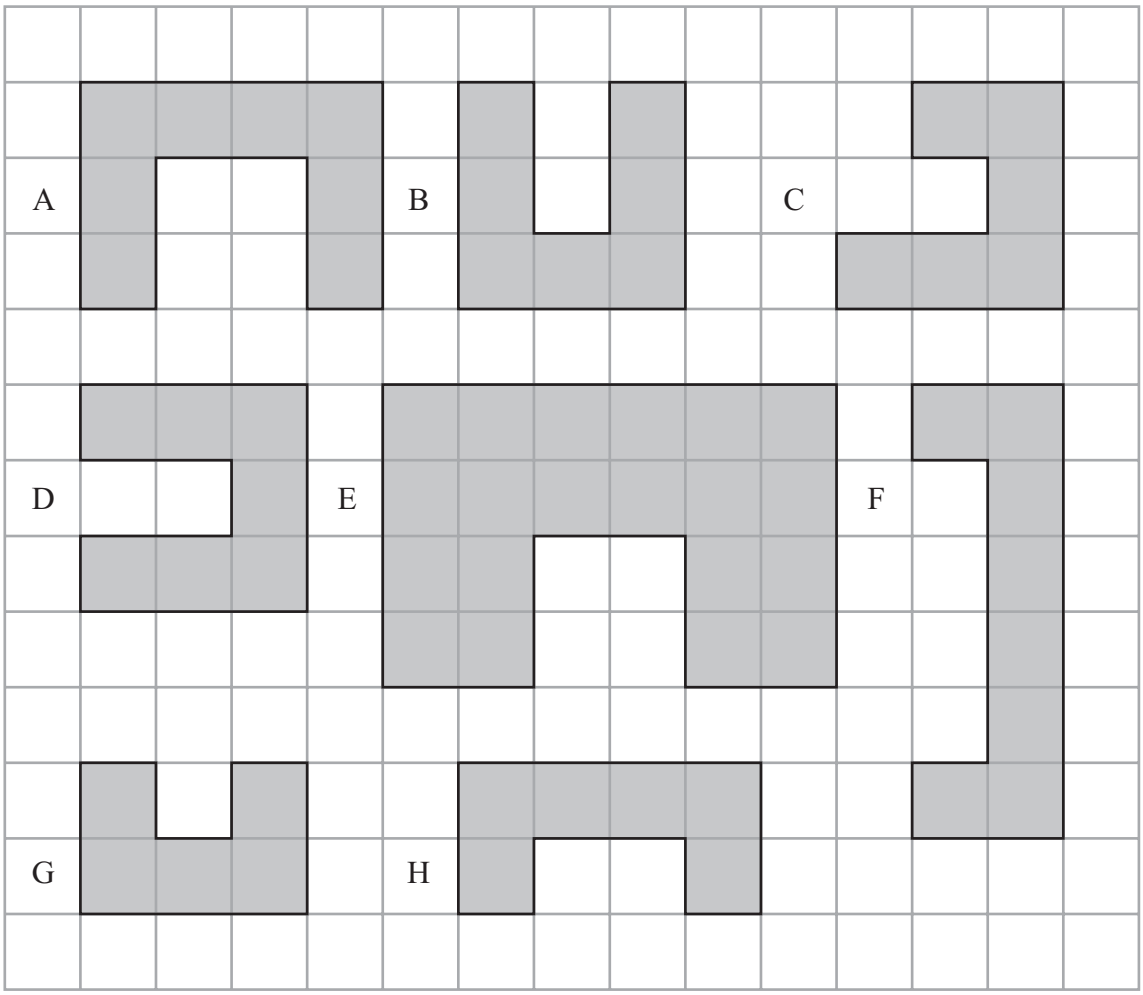
273 Draw a circle of radius 5 cm.
Use the cross (×) as the centre of your circle.

×

(Total for Question 273 is 1 mark)

EXPERT TUITION

274 These shapes have been drawn on a grid of centimetre squares.



(a) (i) Write down the letters of a pair of shapes that are congruent.

..... and .....

(ii) Write down the letters of a different pair of shapes that are similar.

..... and .....

(2)

(b) Find the perimeter of shape D.

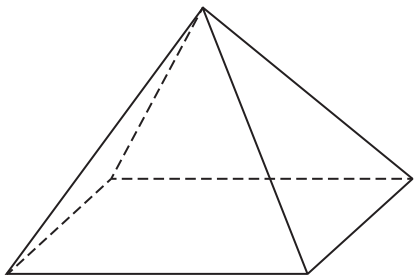
..... cm

(1)

(Total for Question 274 is 3 marks)

EXPERT TUITION

275 The diagram shows a pyramid.



(a) Write down the number of

(i) faces,

.....

(ii) edges,

.....

(iii) vertices.

.....

(3)

The base of the pyramid is a square.

(b) In the space below, draw a sketch of a net for this pyramid.

(2)

(Total for Question 275 is 5 marks)

EXPERT TUITION

276 Here is a solid prism.

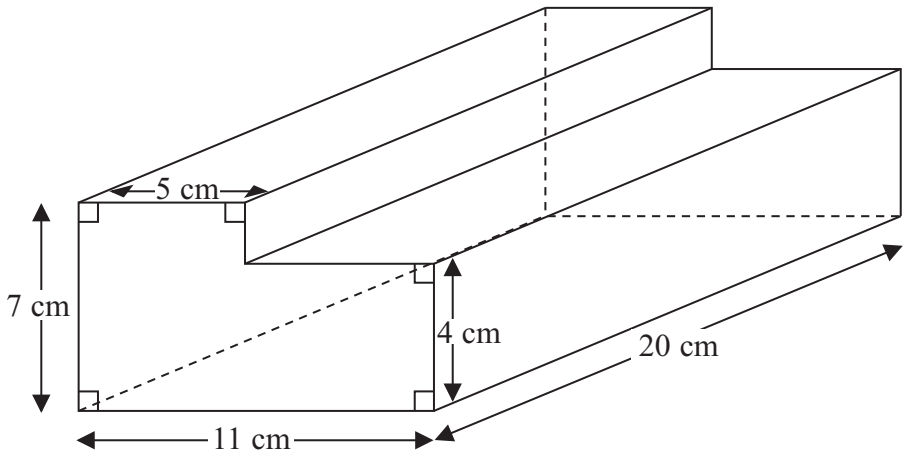


Diagram **NOT** accurately drawn

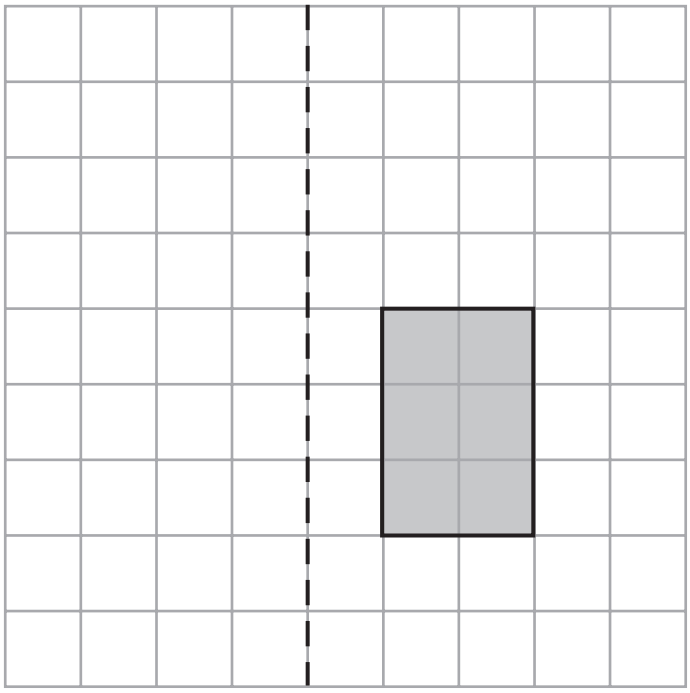
Work out the volume of the prism.

..... cm^3

(Total for Question 276 is 3 marks)

EXPERT TUITION

277 Here is a shaded shape on a grid of centimetre squares.



(a) Find the perimeter of the shaded shape.

..... cm

(1)

(b) Find the area of the shaded shape.

..... cm^2

(1)

(c) Reflect the shaded shape in the mirror line.

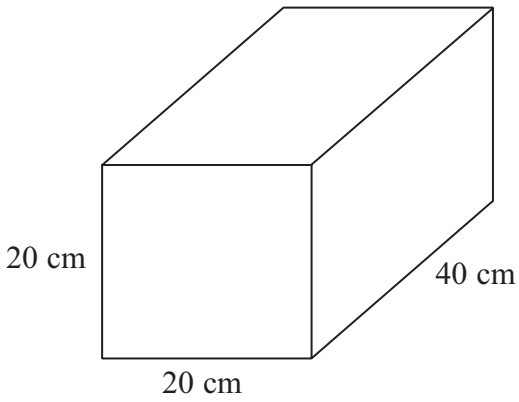
(2)

(Total for Question 277 is 4 marks)

EXPERT TUITION

278 Here is a cuboid.

Diagram **NOT** accurately drawn



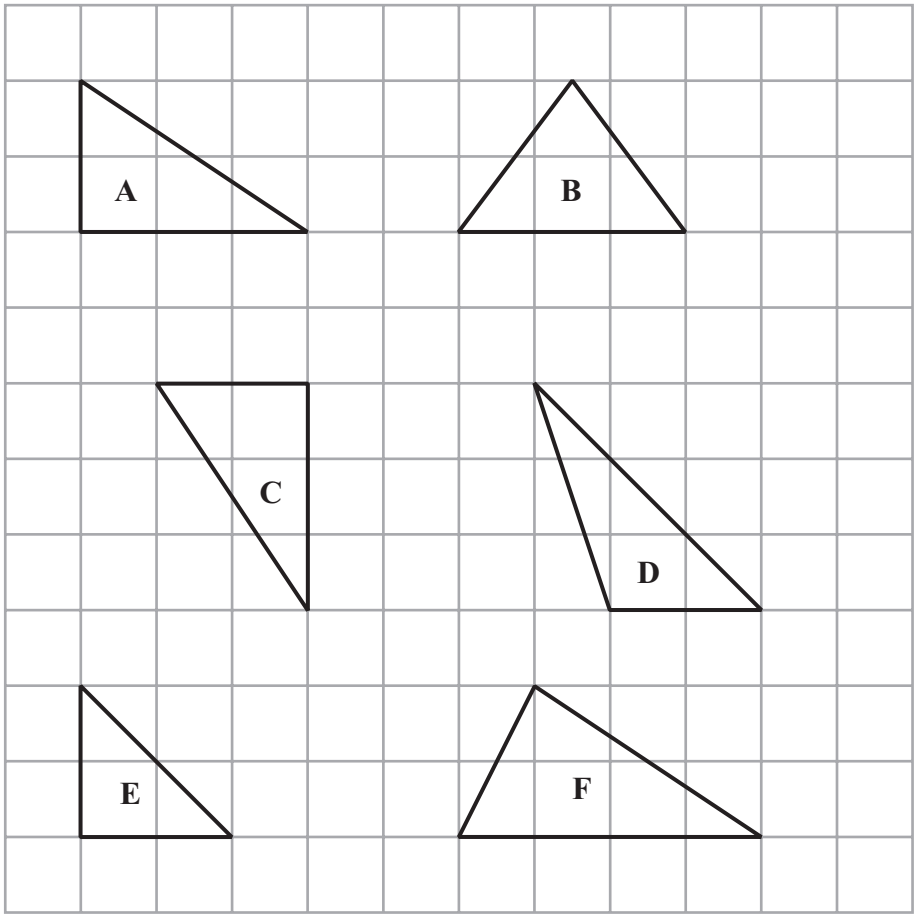
Work out the volume of the cuboid.

.....

(Total for Question 278 is 3 marks)

EXPERT TUITION

279 Here are 6 triangles drawn on a grid of centimetre squares.



(a) Write down the letters of the **two** congruent triangles.

.....

(1)

(b) Write down the letter of an isosceles triangle.

.....

(1)

(c) Find the area of triangle **E**.

..... cm^2

(1)

(Total for Question 279 is 3 marks)

EXPERT TUITION

***280** Here is a diagram of a wall.

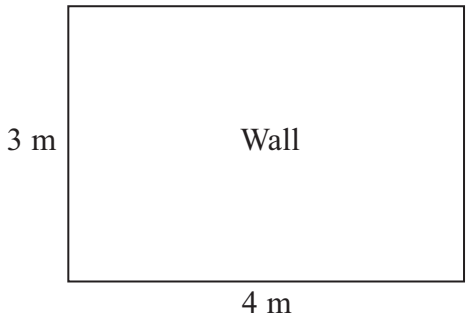
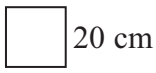


Diagram **NOT** accurately drawn



Tile

Halima wants to cover all of the wall with tiles.

The tiles are squares with sides of length 20 cm.

The tiles are sold in packs.
There are 10 tiles in each pack.
Each pack of tiles costs £34.99

Halima only has £1000

Can she buy enough packs of tiles to cover the wall?

(Total for Question 280 is 6 marks)

EXPERT TUITION

281 The diagram shows part of a net of a cube.

(a) Add one square to the diagram to complete the net.

(1)

Two opposite faces of the cube are to be shaded.

(b) On the diagram, shade two faces to show how this can be done.

(1)

(c) Write down the number of edges that the cube has.

.....

(1)

(Total for Question 281 is 3 marks)

EXPERT TUITION

***282**

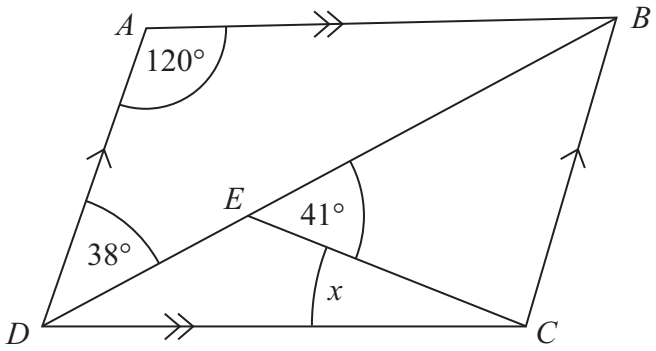


Diagram **NOT** accurately drawn

ABCD is a parallelogram.

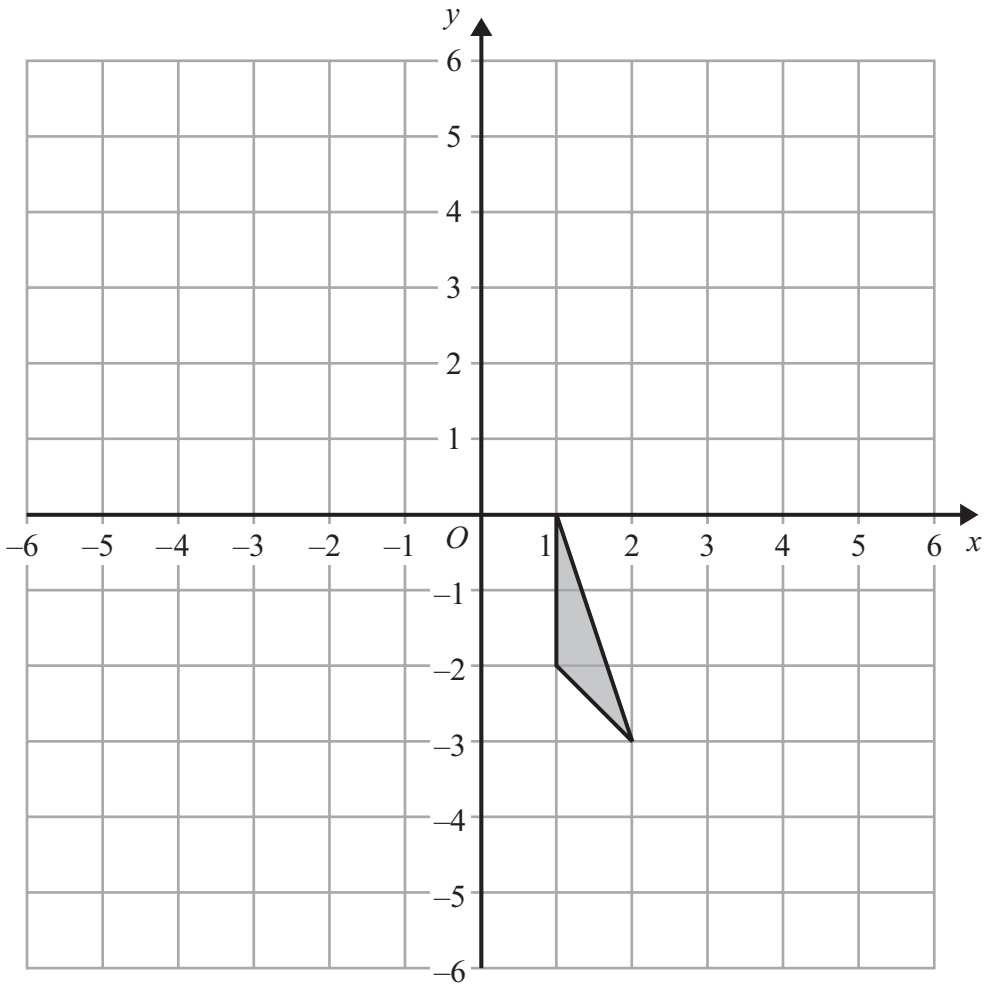
Angle *ADB* = 38°.
Angle *BEC* = 41°.
Angle *DAB* = 120°.

Calculate the size of angle *x*.
You must give reasons for your answer.

(Total for Question 282 is 4 marks)

EXPERT TUITION

283

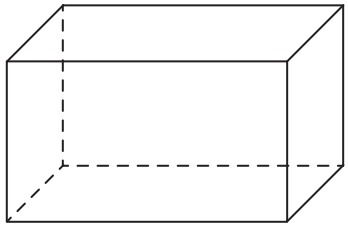


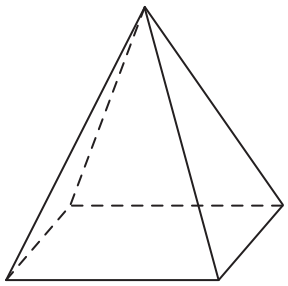
Translate the triangle by $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$.

(Total for Question 283 is 2 marks)

EXPERT TUITION

284 Write down the name of each of these 3-D shapes.

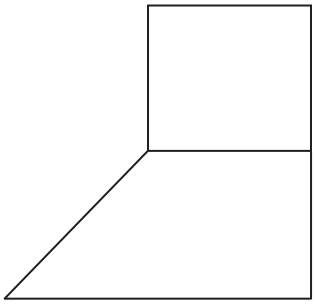




(i) ..... (ii) .....

(Total for Question 284 is 2 marks)

285 Here is a square and a trapezium.



(a) Write down the size of each angle of the square.

..... °

(1)

(b) Mark, with the letter O, an obtuse angle.

(1)

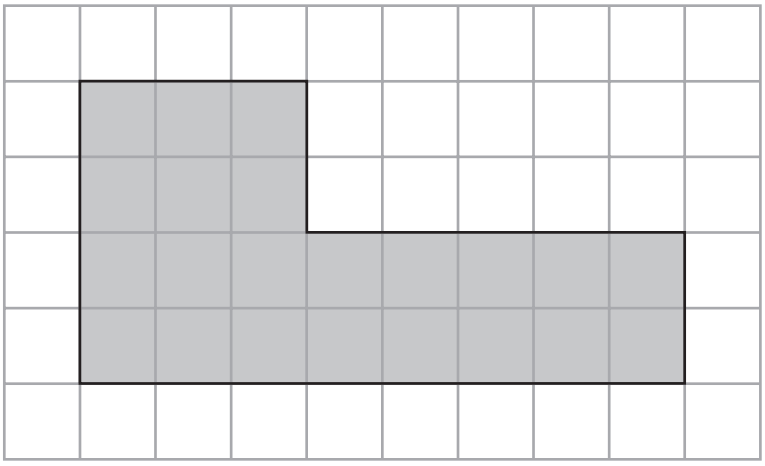
(c) Find two lines that are perpendicular.
Mark each of these lines with a letter P.

(1)

(Total for Question 285 is 3 marks)

EXPERT TUITION

286 The shaded shape is drawn on a grid of centimetre squares.



(a) Find the perimeter of the shaded shape.

..... cm

(1)

(b) Find the area of the shaded shape.

..... cm^2

(1)

(Total for Question 286 is 2 marks)

287

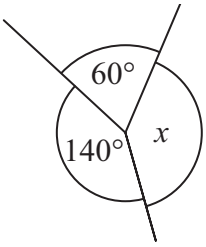


Diagram **NOT** accurately drawn

(i) Work out the size of angle x.

..... °

(ii) Give a reason for your answer.

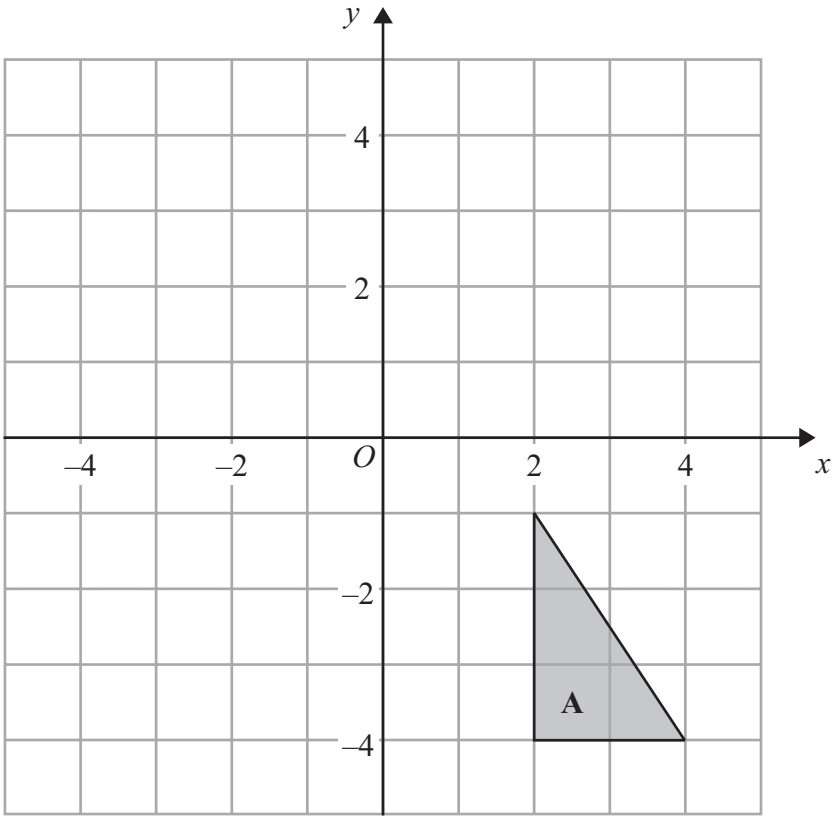
.....

.....

(Total for Question 287 is 2 marks)

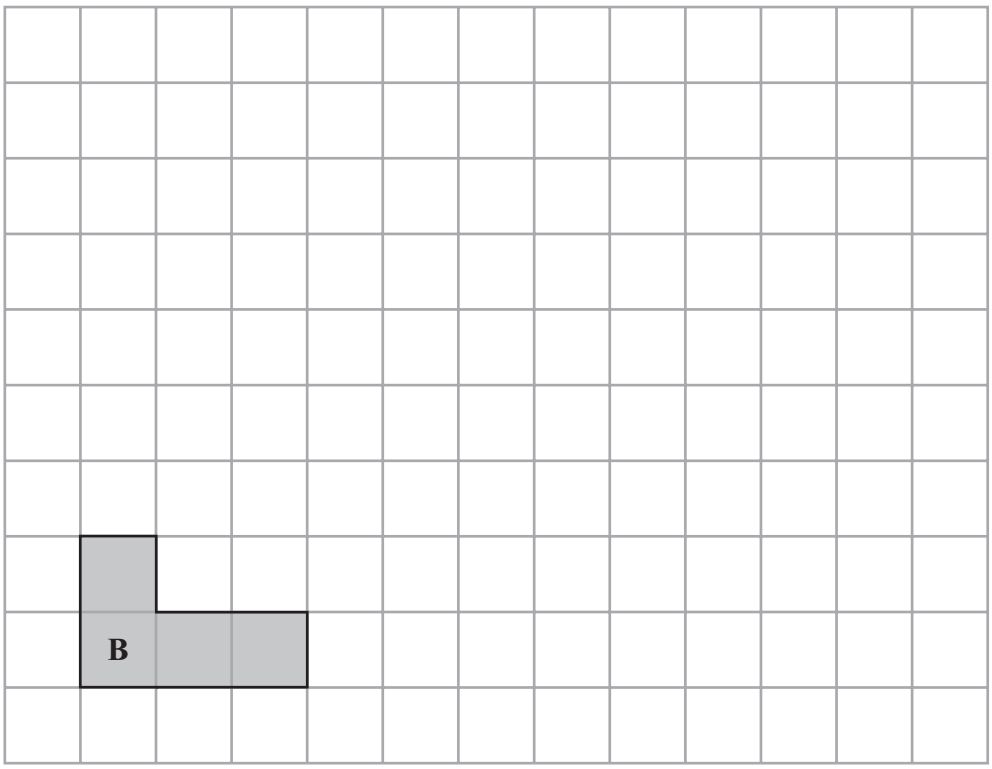
EXPERT TUITION

288



(a) Reflect triangle **A** in the x-axis.

(2)



(b) Draw an enlargement, scale factor 3, of shape **B**.

(2)

(Total for Question 288 is 4 marks)

EXPERT TUITION

*289 Mr Weaver's garden is in the shape of a rectangle.

In the garden

there is a patio in the shape of a rectangle
and two ponds in the shape of circles with diameter 3.8 m.

The rest of the garden is grass.

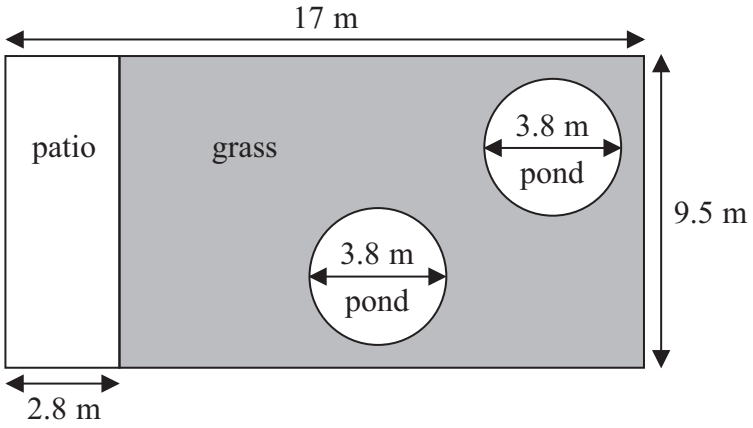


Diagram **NOT** accurately drawn

Mr Weaver is going to spread fertiliser over all the grass.
One box of fertiliser will cover 25 m^2 of grass.

How many boxes of fertiliser does Mr Weaver need?
You must show your working.

(Total for Question 289 is 5 marks)

EXPERT TUITION