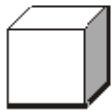
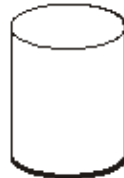
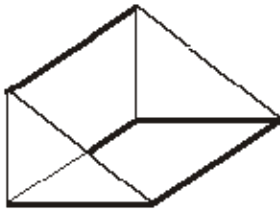


**Foundation/Higher GCSE Mathematics Revision Pack****SHAPE AND SPACE – NON CALC**

**Q1.** Ben is planning to make some blocks for a child.

The diagram shows some 3-D shapes.

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

- (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)**

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.

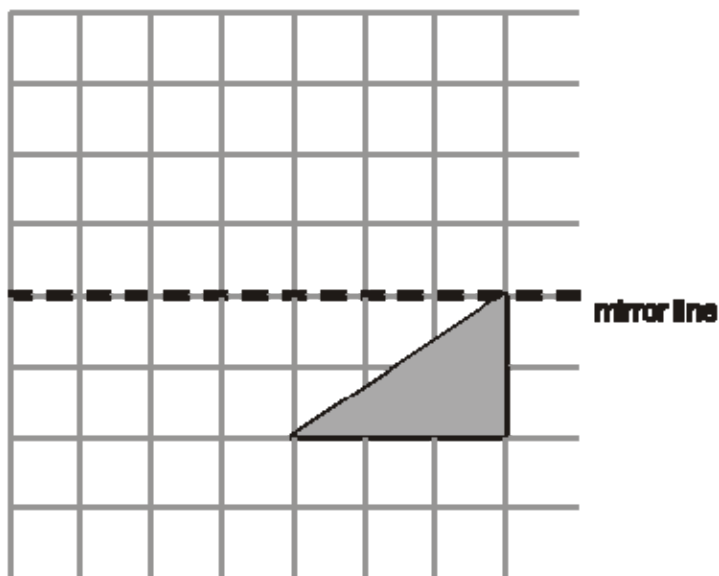
- (d) (i) In the space below draw an accurate net of the solid shape **B**.  
(ii) Find the length and width of the smallest rectangle of card needed for the net.

Smallest width .....

Smallest length .....

**(5)**  
**(Total 8 marks)**

Q2.



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

(1)

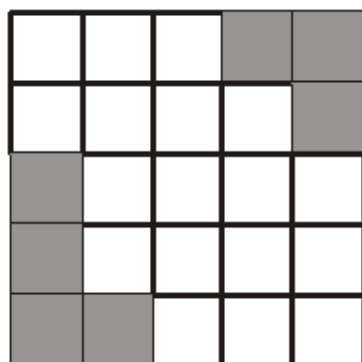
Here is a pattern made with squares.



(b) Shade one square to make a black and white pattern with only **one** line of symmetry.

(1)

Here is another pattern made with squares.

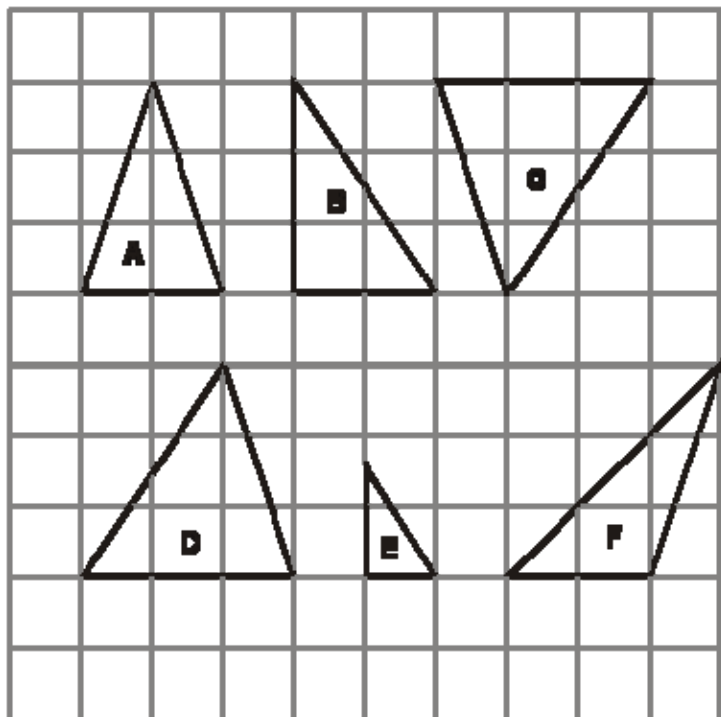


(c) Shade **three** more squares to make a pattern with rotational symmetry of order 2.

(1)

(Total 3 marks)

**Q3.** These triangles have been drawn on a centimetre grid.



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

..... and .....

(1)

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

..... and .....

(1)

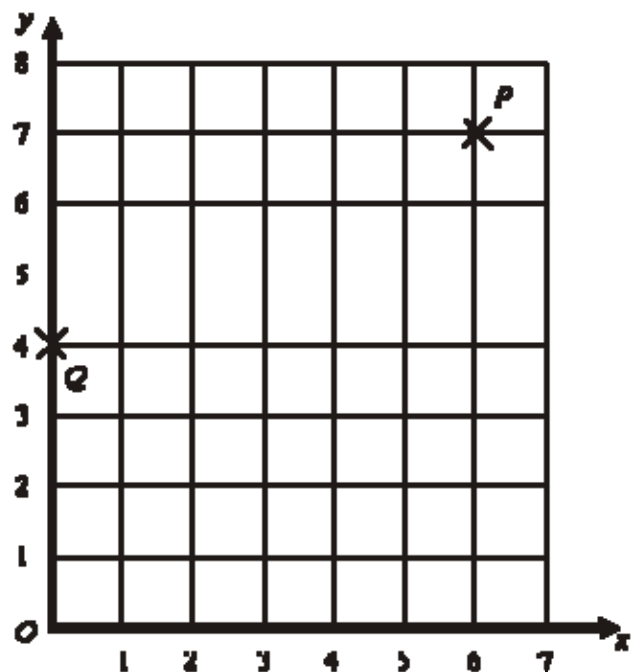
- (c) Find the area of triangle **D**.

.....

(1)

**(Total 3 marks)**

**Q4.** Here is a coordinate grid.



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

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

(1)

$R$  is the midpoint of  $PQ$ .

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

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

(2)

The point  $B$  is on the  $x$ -axis.

The line  $BP$  is parallel to the  $y$ -axis.

(c) Write down the coordinates of the point  $B$ .

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

(2)

**(Total 5 marks)**

**Q5.** Here is a point  $P$  marked with a cross (x).

$P \times$

(a) Draw a line 7 cm long.  
Start from the point  $P$ .

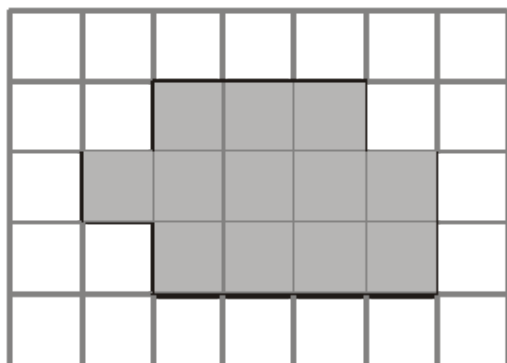
(1)

(b) On your line, mark with a cross (x) the point which is 3 cm from  $P$ .  
Label this point  $Q$ .

(1)

**(Total 2 marks)**

Q6.



The diagram shows a shaded shape drawn on a centimetre grid.

- (a) Work out the perimeter of the shaded shape.

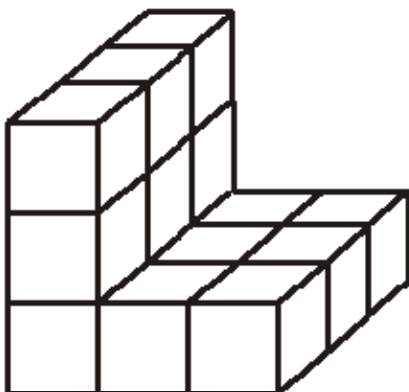
..... cm

(1)

- (b) Work out the area of the shaded shape.  
State the units of your answer.

.....

(2)



represents  
1 cm<sup>3</sup>

Diagrams **NOT** accurately drawn

Here is a solid prism made of centimetre cubes.

- (c) Find the volume of the solid prism.

..... cm<sup>3</sup>

(2)

(Total 5 marks)

**Q7.** The table shows part of a bus timetable from Shotton to Alton.

<b>Shotton</b>	07 30	08 00	09 00	10 00	11 00
<b>Crook</b>	07 45	08 15	09 15	10 15	11 15
<b>Prudhoe</b>	07 58	08 28	09 28	10 28	11 28
<b>Hexham</b>	08 15	08 45	09 45	10 45	11 45
<b>Alton</b>	08 30	09 00	10 00	11 00	12 00

A bus leaves Shotton at 07 30

- (a) What time should it arrive at Alton?

.....

(1)

Another bus leaves Prudhoe at 08 28

- (b) How many minutes should it take to get to Hexham?

..... minutes

(1)

Serena lives in Crook.

She has to be in Hexham by quarter past 11

- (c) What is the time of the latest bus she can catch from Crook to arrive in Hexham by quarter past 11?

.....

(1)

(Total 3 marks)

**Q8.**

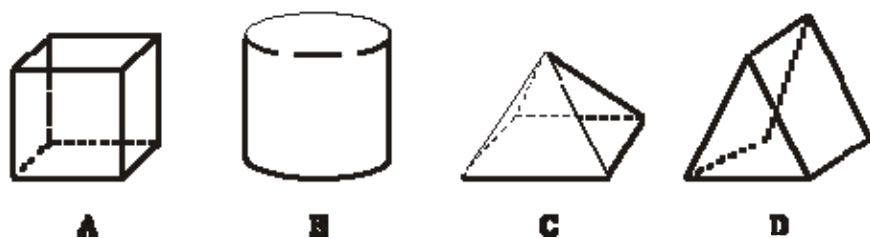


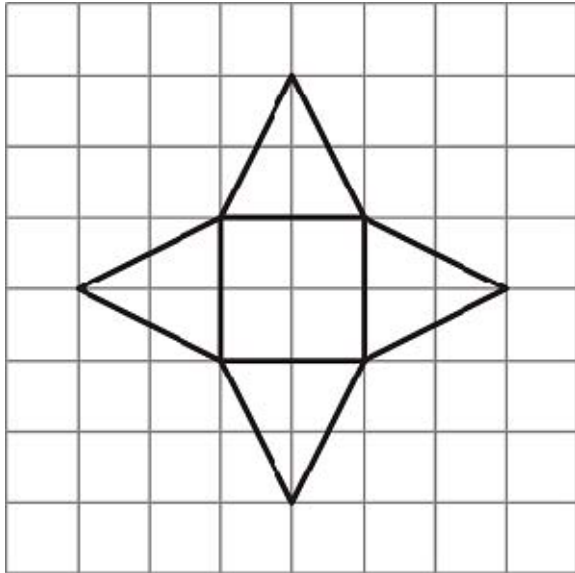
Diagram **NOT** accurately drawn

The diagram shows four 3-D solid shapes.

- (a) Write down the number of vertices of shape A.

.....

(1)



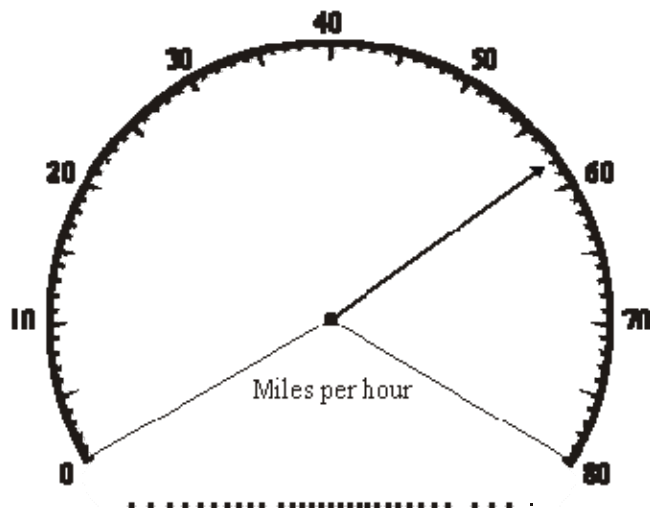
Here is the net of one of the shapes, **A**, **B**, **C** or **D**.

(b) Which shape?

.....

(1)  
(Total 2 marks)

**Q9.**



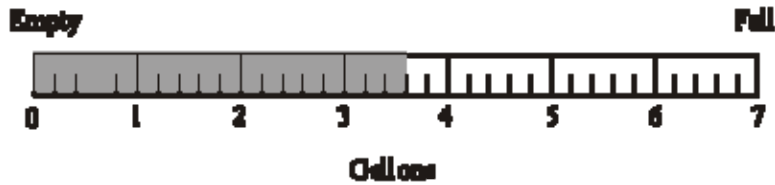
The diagram shows the speed of a car.

(a) Write down the speed of the car.

..... miles per hour

(1)

The scale below shows the amount of fuel in a tank.



(b) Write down the amount of fuel in the tank.

..... gallons

(1)

When the tank is full, there are 7 gallons of fuel in the tank.

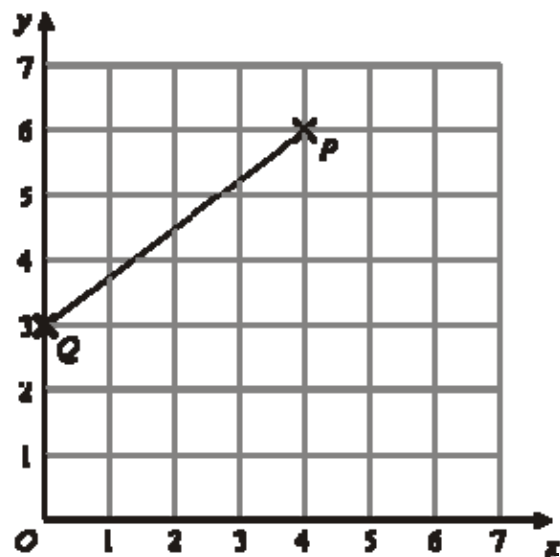
(c) Work out how much more fuel has to be added to the tank to fill it completely.

..... gallons

(1)

(Total 3 marks)

Q10.



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

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

(1)

(b) Write down the coordinates of the point  $Q$ .

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

(1)

$M$  is the midpoint of the line from  $Q$  to  $P$ .

(c) Find the coordinates of  $M$ .

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

(2)

(Total 4 marks)



Q11.

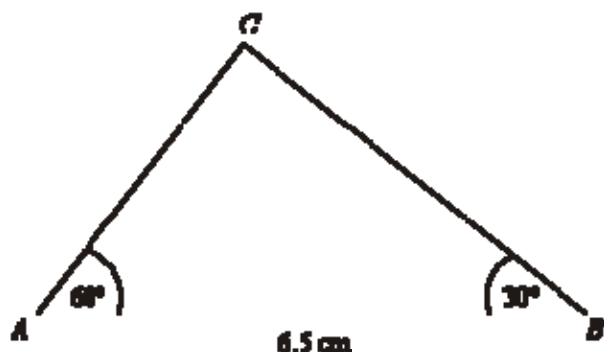


Diagram **NOT** accurately drawn

- (a) Make an accurate drawing of triangle  $ABC$ .  
The side  $AB$  has already been drawn for you.



(2)

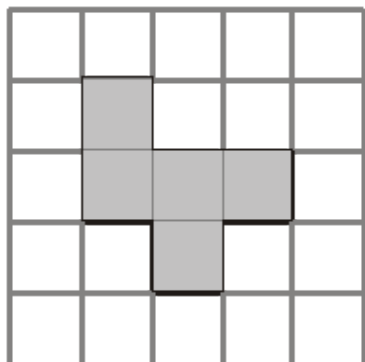
- (b) Measure the size of the angle at  $C$  in your triangle.

.....°

(1)

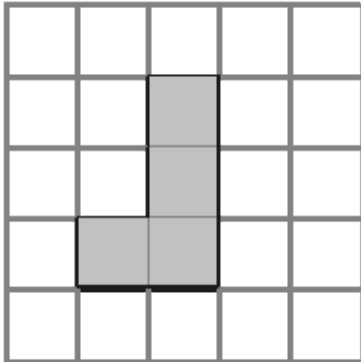
(Total 3 marks)

- Q12. (a) On the diagram below, shade **one** square so that the shape has exactly **one** line of symmetry.



(1)

- (b) On the diagram below, shade **one** square so that the shape has rotational symmetry of order 2



(1)  
(Total 2 marks)

- Q13.** (a) Measure the length of the line  $AB$ .  
Give your answer in centimetres.



..... cm

(1)

- (b) Mark the midpoint of the line  $AB$  with a cross ( $\times$ ).

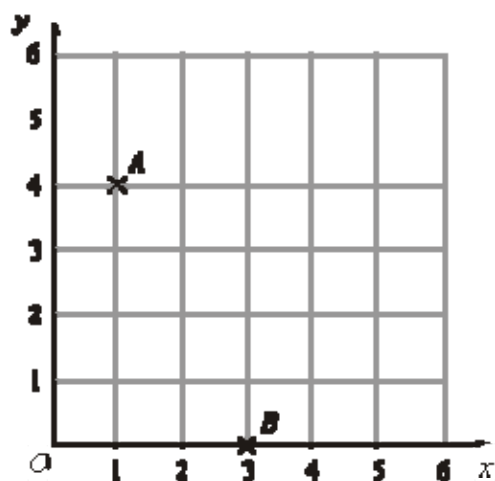
(1)

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



(1)  
(Total 3 marks)

Q14.



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

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

(ii) Write down the coordinates of point *B*.

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

(2)

(b) On the grid, mark with a cross (×) the point (5, 2).  
Label this point *C*.

(1)

(Total 3 marks)

Q15.

(a) Write down a sensible **metric** unit for measuring

(i) the distance from London to Paris,

.....

(ii) the amount of water in a swimming pool.

.....

(2)

(b) (i) Change 5 centimetres to millimetres.

..... mm

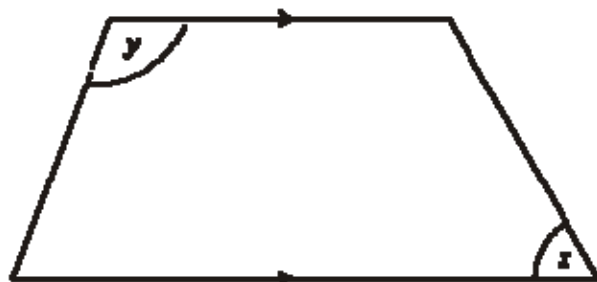
(ii) Change 4000 grams to kilograms.

..... kg

(2)

(Total 4 marks)

Q16.



- (a) Write down the special name for this quadrilateral.

.....

(1)

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

.....<sup>o</sup>

(1)

- (c) Write down the special name for the angle marked  $y$ .

.....

(1)

**(Total 3 marks)**

Q17. Here is a rectangle.

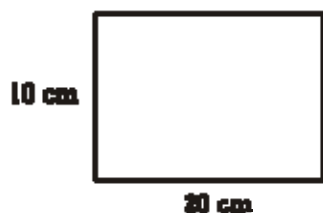


Diagram **NOT** accurately drawn

- (a) Work out the perimeter of the rectangle.

..... cm

(2)

- (b) Work out the area of the rectangle.

..... cm<sup>2</sup>

(2)

**(Total 4 marks)**

Q18.



Diagram **NOT** accurately drawn

$AB$  is a straight line.

- (a) This diagram is wrong.  
Explain why.

.....

(1)



Diagram **NOT** accurately drawn

- (b) Work out the size of the angle marked  $x$ .

.....°

(2)

(Total 3 marks)

Q19.



- (a) Measure the length of the line  $AB$ .  
Give the units with your answer.

.....

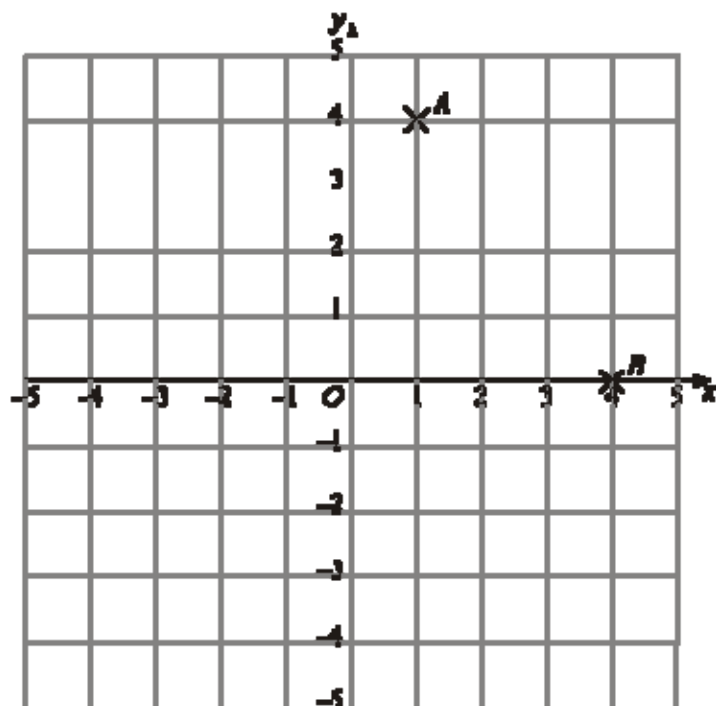
(2)

- (b) On the diagram, mark with a cross ( $\times$ ) the midpoint of the line  $AB$ .

(1)

(Total 3 marks)

Q20.



- (a) (i) Write down the coordinates of the point  $A$ .

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

- (ii) Write down the coordinates of the point  $B$ .

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

(2)

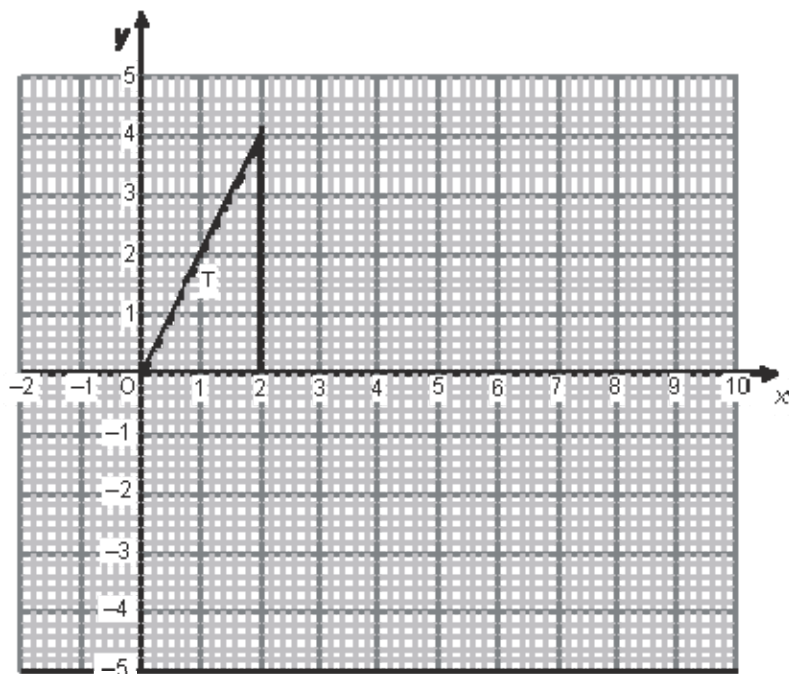
- (b) (i) On the grid, plot the point  $(3, 2)$ .  
Label this point  $P$ .

- (ii) On the grid, plot the point  $(-4, 3)$ .  
Label this point  $Q$ .

(2)

(Total 4 marks)

Q21.



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

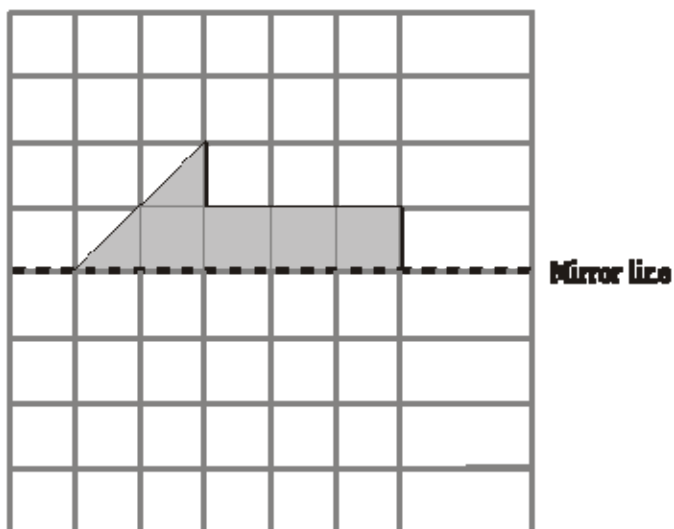
The shape **U** is rotated by  $180^\circ$  about the point (6, 0) to give the shape **V**.

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

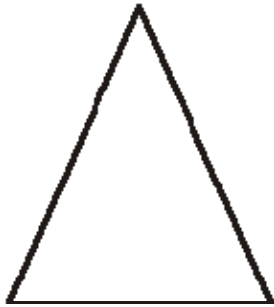
.....  
 .....

(Total 3 marks)

Q22.



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



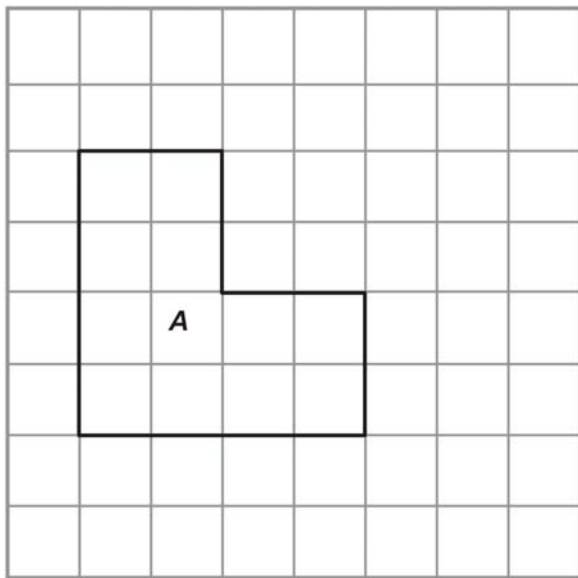
(1)

(b) Draw the line of symmetry on this triangle.

(1)

(Total 2 marks)

**Q23.**



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

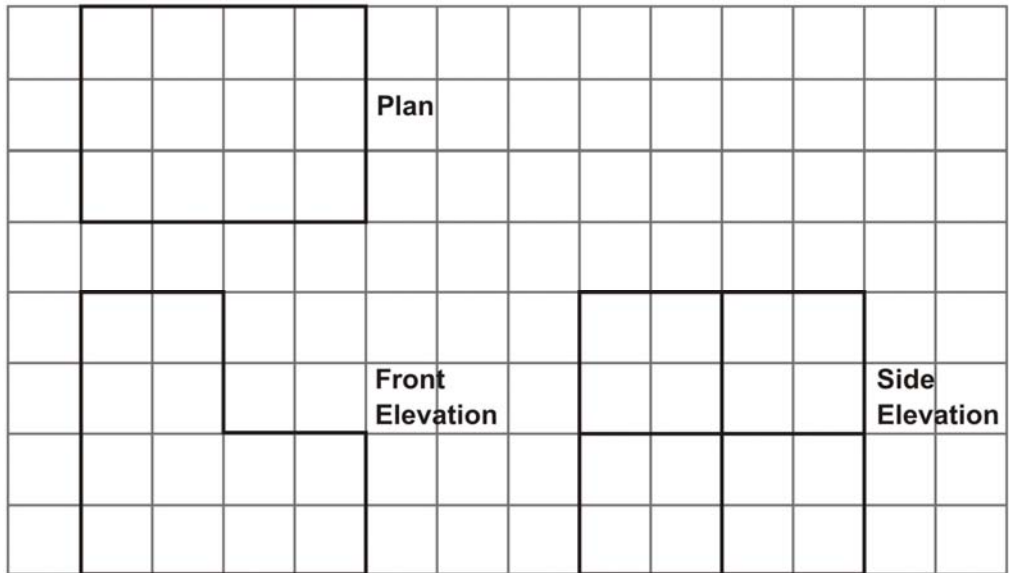
(a) Find the perimeter of shape *A*.

.....

(1)

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 5 marks)

Q24. (a)

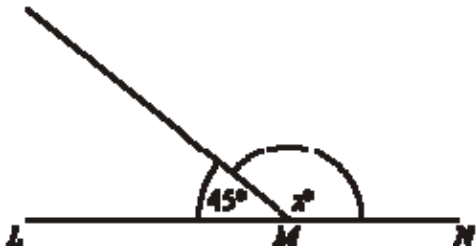


Diagram **NOT** accurately drawn

$LMN$  is a straight line.

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

$x =$  .....

(ii) Give a reason for your answer.

.....  
.....

(2)

(b)

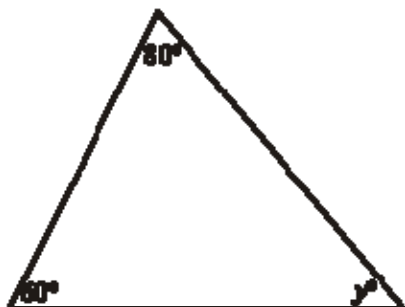


Diagram **NOT** accurately drawn

Work out the value of  $y$ .

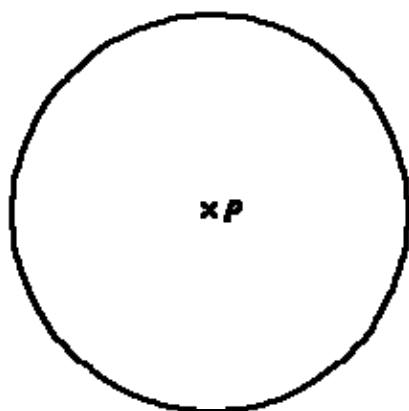
$y = \dots\dots\dots$

(2)

(Total 4 marks)

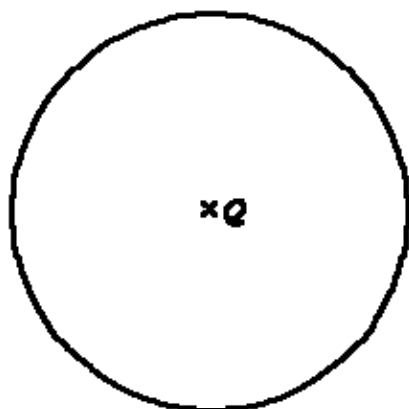
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Q25.



(a) In the circle, centre  $P$ , draw a radius.

(1)



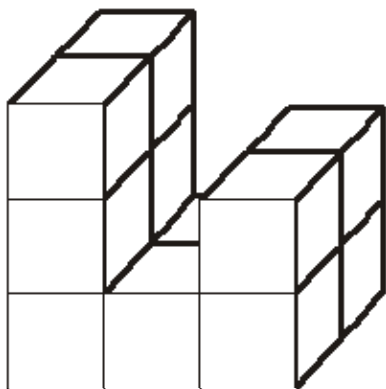
(b) In the circle, centre  $Q$ , draw a chord.

(1)

(Total 2 marks)

---

**Q26.** Here is a solid prism made from centimetre cubes.



Work out the volume of the solid prism.

..... cm<sup>3</sup>

**(Total 2 marks)**

**Q27.** Here are four shapes.



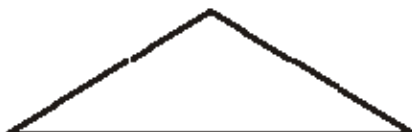
**A**



**B**



**C**



**D**

Write down the letter of the shape which has

(i) exactly **one** line of symmetry,

.....

(ii) **no** lines of symmetry,

.....

(iii) exactly **two** lines of symmetry.

.....

**(Total 3 marks)**

Q28.

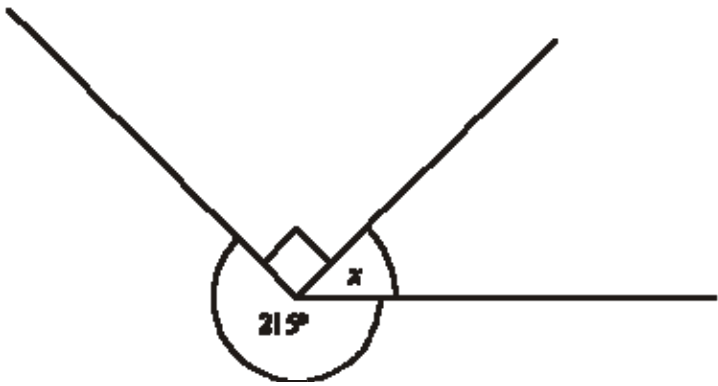


Diagram **NOT** accurately drawn

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

.....°

(ii) Give a reason for your answer.

.....  
.....

**(Total 3 marks)**

Q29. (a) Complete the table by writing a sensible **metric** unit for each measurement.  
The first one has been done for you.

The length of the river Nile	6700.....kilometres.....
The height of the world's tallest tree	110.....
The weight of a chicken's egg	70.....
The amount of petrol in a full petrol tank of a car	40.....

**(3)**

(b) Change 4 metres to centimetres.

..... cm

**(1)**

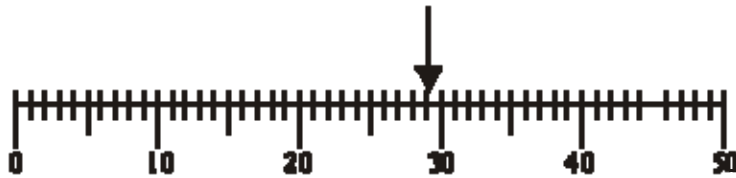
(c) Change 1500 grams to kilograms.

..... kg

**(1)**

**(Total 5 marks)**

Q30. (a)



Write down the number marked by the arrow.

(1)

(b)



Find the number 120 on the number line.  
Mark it with an arrow ( $\downarrow$ ).

(1)

(Total 2 marks)

Q31.

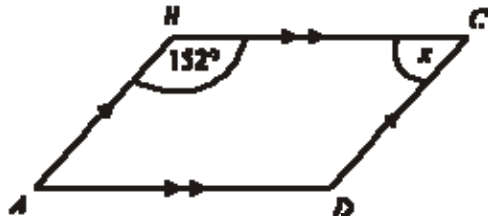


Diagram **NOT** accurately drawn

$ABCD$  is a parallelogram.

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

$x = \dots\dots\dots^\circ$

(Total 2 marks)

Q32.

(a) Write down a sensible **metric** unit that can be used to measure

(i) the height of a tree,

.....

(ii) the weight of a person.

.....

(2)

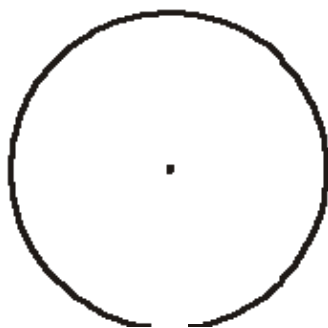
(b) Change 2 centimetres to millimetres.

..... millimetres

(1)

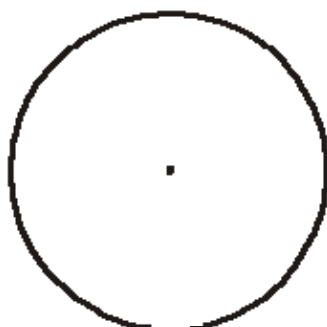
(Total 3 marks)

**Q33.** (a) In the circle below, draw a diameter.



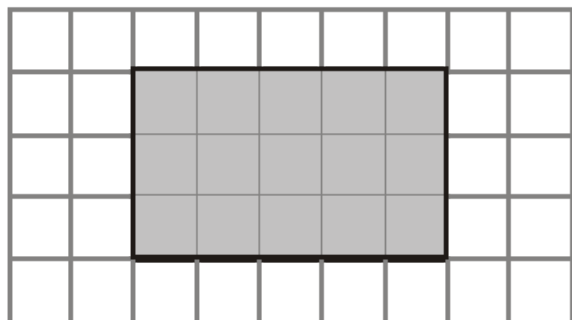
(1)

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



(1)  
(Total 2 marks)

**Q34.** 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.

.....  $\text{cm}^2$

(1)

(c) Write down the mathematical name of the shaded shape.

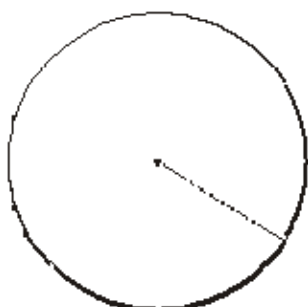
.....

(1)  
(Total 3 marks)

**Q35.** Here are some words which describe parts of a circle.

Radius	Diameter	Sector
Chord	Tangent	Segment

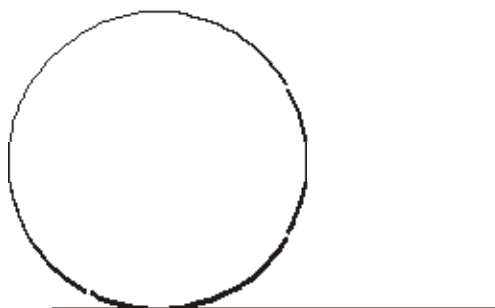
- (a) Write down the mathematical name of the straight line shown in this diagram.  
Use one of the words from the box.



.....

(1)

- (b) Write down the mathematical name of the straight line shown in the diagram.  
Use one of the words from the box.

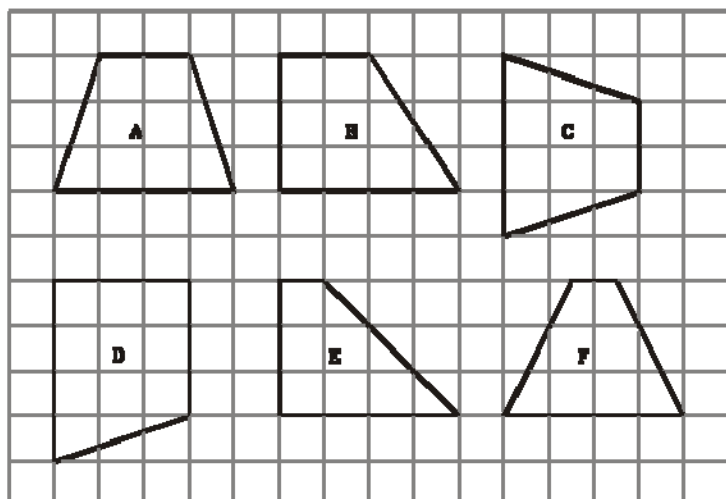


.....

(1)

**(Total 2 marks)**

**Q36.** Here are 6 shapes drawn on a grid.



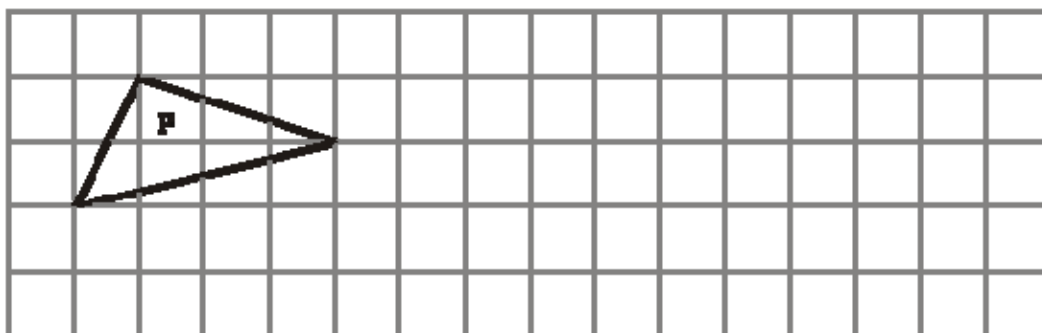
Two of these shapes are congruent.

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

..... and .....

(1)

(b) On the grid below, draw a shape that is congruent to shape **P**.



(1)

(Total 2 marks)

**Q37.** Here is a cuboid.

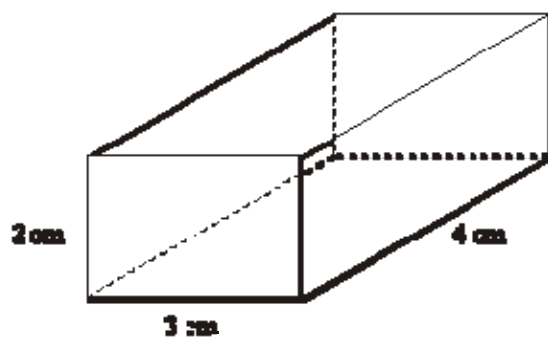
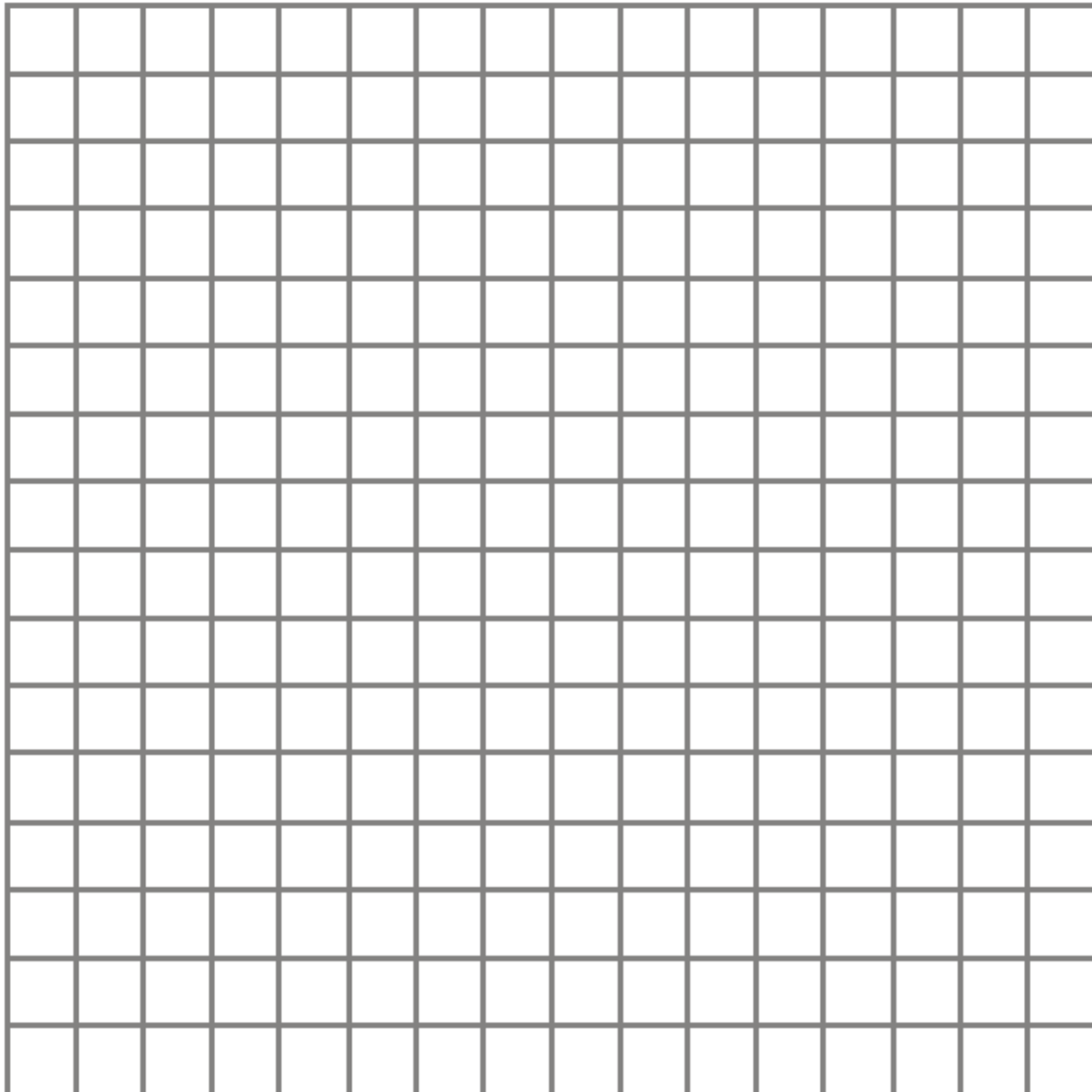


Diagram **NOT** accurately drawn

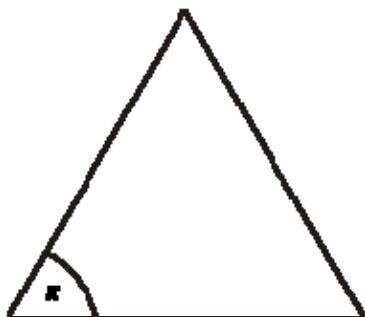


Draw an accurate net of this cuboid.



(Total 3 marks)

Q38. (a) Here is an equilateral triangle.

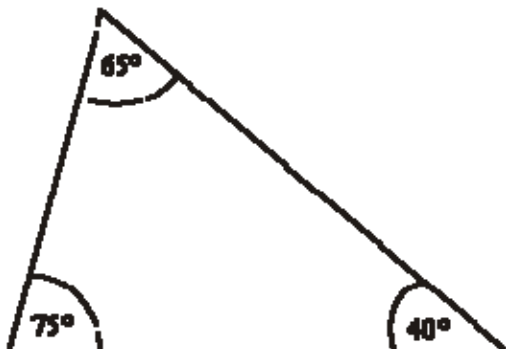


Write down the size of the angle marked  $x$ .

$x = \dots\dots\dots^\circ$

(1)

(b) Here is a triangle.



Rob says this triangle is a right-angled triangle.

Rob is wrong.

Explain why.

.....

.....

(1)  
(Total 2 marks)

**Q39.** Here are five shapes.



**A**



**B**



**C**



**D**



**E**

Write down the letter of a shape that has

(i) **no** lines of symmetry,

.....

(ii) exactly **one** line of symmetry,

.....

(iii) exactly **two** lines of symmetry,

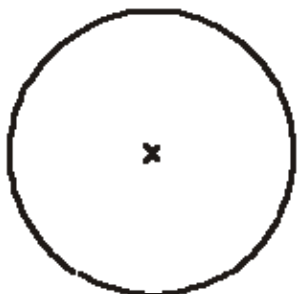
.....

(iv) rotational symmetry of order two.

.....

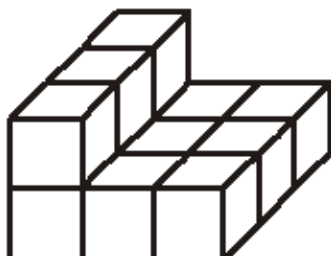
(Total 4 marks)

**Q40.** In the circle, draw a diameter.



(Total 1 mark)

**Q41.** Here is a solid prism made from centimetre cubes.



Find the volume of the prism.

..... cm<sup>3</sup>

(Total 2 marks)

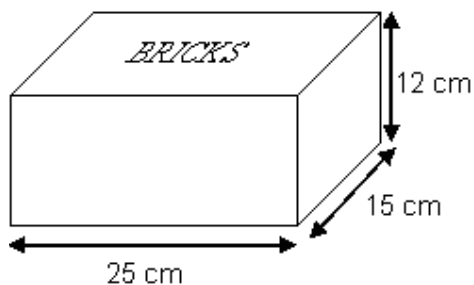
**Q42.**

A company makes building bricks for children.  
The bricks are all 5 cm cubes.

The bricks are going to be packed in boxes.

John designs a box for the bricks.  
The box is a cuboid.

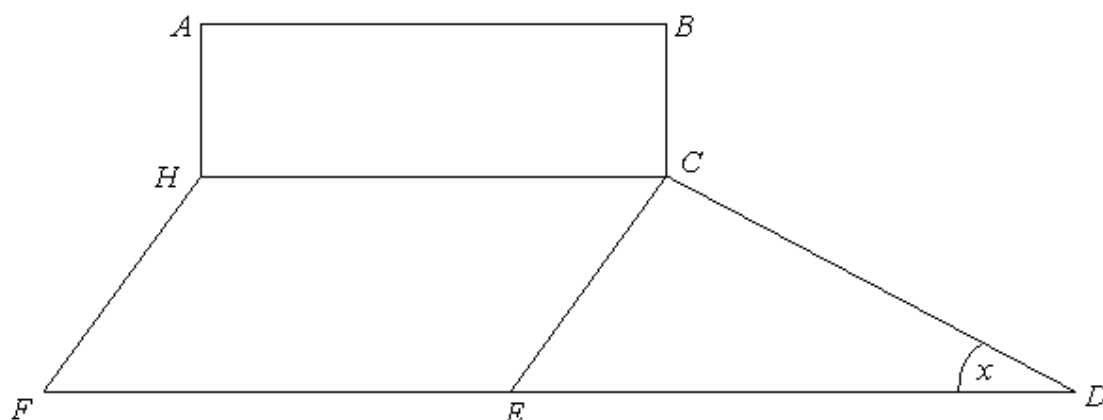
The size of the box is 25 cm by 15 cm by 12 cm.



Will the box be big enough for 36 bricks?  
You must give reasons for your answer.

(Total 4 marks)

**Q43.** The diagram shows a rectangle, a parallelogram and a triangle.



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

(1)

(b) What type of angle is the angle marked  $x$  ?

.....

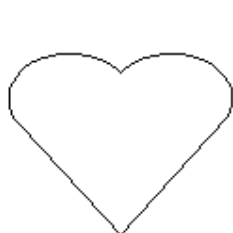
(1)

(c) Mark the angle  $HCE$  with the letter  $y$ .

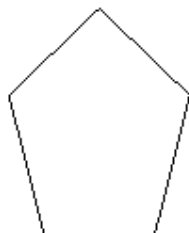
(1)

**(Total 3 marks)**

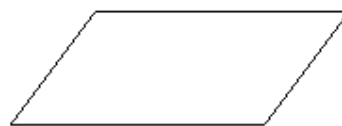
**Q44.** Here are five shapes.



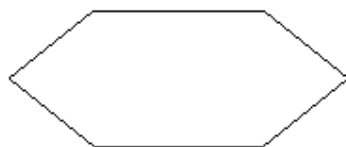
**A**



**B**



**C**



**D**



**E**

One of these shapes is a parallelogram.

(a) Write down the letter of this shape.

.....

(1)

**One** of these shapes has exactly **two** lines of symmetry.

(b) Which shape?

.....

(1)

(c) Write down the order of rotational symmetry of shape **C**.

.....

(1)  
(Total 3 marks)

**Q45.** Here is a solid cuboid.

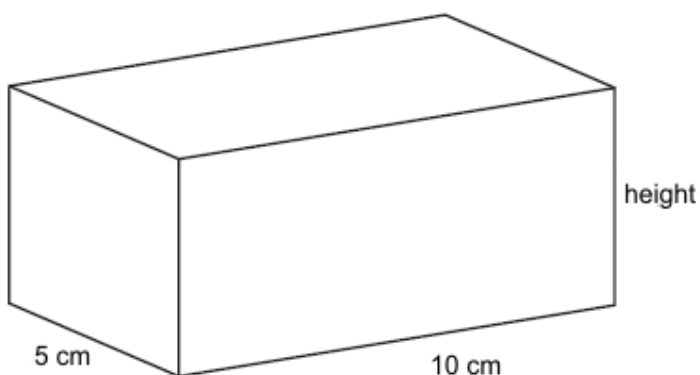


Diagram **NOT** accurately drawn

The cuboid has a width of 5 cm and a length of 10 cm.  
The cuboid has a total surface area of  $280 \text{ cm}^2$ .

Work out the height of the cuboid.

..... cm

(Total 4 marks)

**Q46.** Here is a diagram of a cuboid.

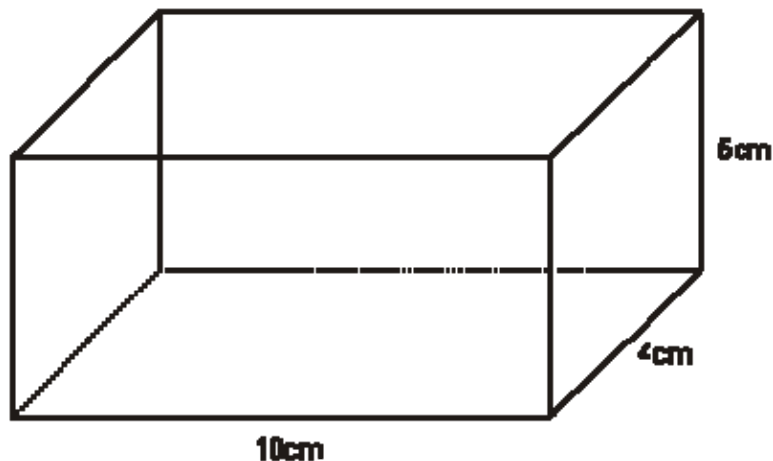


Diagram **NOT** accurately drawn

- (a) Write down the number of edges of the cuboid.

.....

(1)

- (b) Calculate the volume of the cuboid.

.....

(3)

(Total 4 marks)

**Q47.**

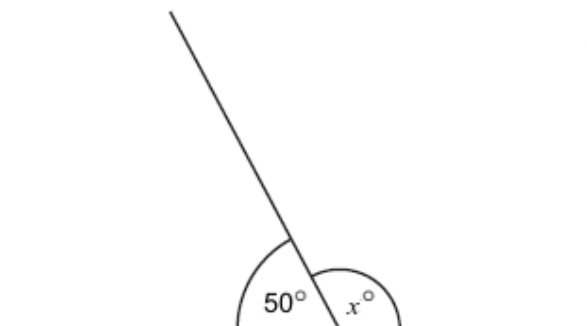


Diagram **NOT** accurately drawn

- (i) Work out the value of  $x$ .

$x =$  .....

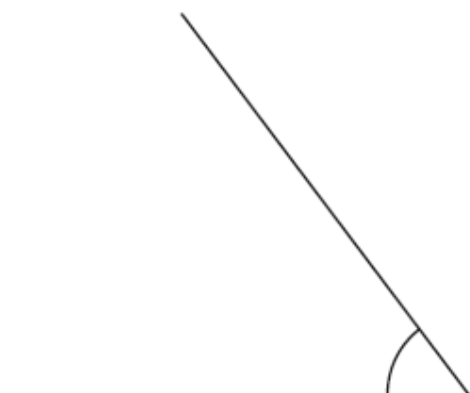
- (ii) Give a reason for your answer.

.....

.....

(Total 2 marks)

- Q48.** (i) What type of angle is this?



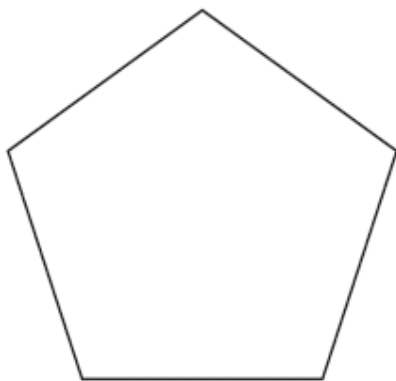
.....

- (ii) Measure the size of the angle.

.....°

(Total 2 marks)

**Q49.** Here is a regular pentagon.



(a) What is the order of rotational symmetry of this pentagon?

.....

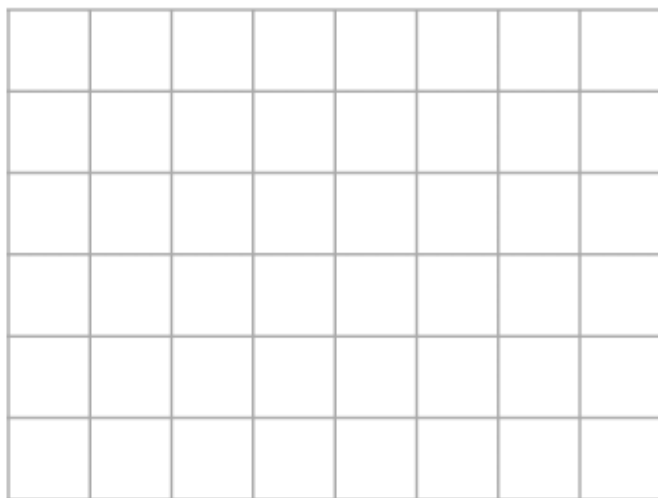
(1)

(b) Draw a line of symmetry on this pentagon.

(1)

**(Total 2 marks)**

**Q50.** (a) On the grid, draw a kite.



(1)

(b) Here is a quadrilateral.



Write down the special name of this quadrilateral.

.....

(1)

**(Total 2 marks)**

**Q51.** (a) Draw all the lines of symmetry of this shape.



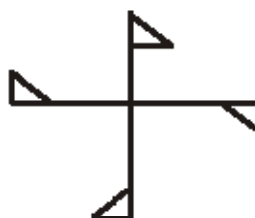
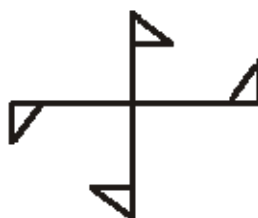
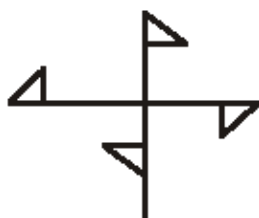
(1)

(b) Which of these shapes has rotational symmetry?

**A**

**B**

**C**

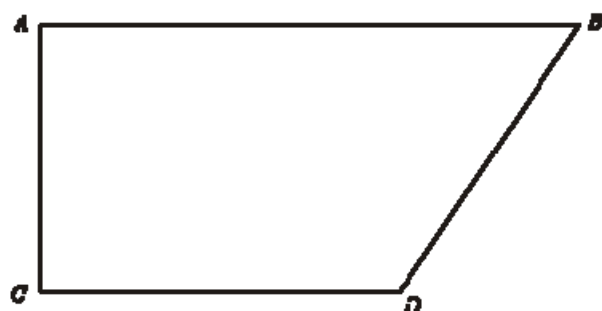


(1)

(c) In the space below, draw a shape that has line symmetry and rotational symmetry order 3.

(2)  
(Total 4 marks)

**Q52.** This is an accurately drawn quadrilateral.



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

.....

(1)

(b) Which line is perpendicular to the line  $CD$ ?

.....

(1)

(c) Measure the length of the line  $AC$ .

.....

(1)



- (d) Measure the size of the angle  $ABD$ .

.....

(1)  
(Total 4 marks)

**Q53.** This is part of a list of TV programmes for one evening.



18 00 Tikkabilla  
18 30 Teletubbies  
19 00 Lunar Jim  
19 10 Kerwhizz  
19 35 Lazy Town  
20 00 ChuckleVision  
20 15 Arthur  
20 30 Richard Hammond's Blast Lab

- (a) Which TV programme lasts for 10 minutes?

.....

(1)

Brian turned on his TV set at 19 40

- (b) How many minutes did Brian have to wait for the start of Arthur?

..... minutes

(1)

Richard Hammond's Blast Lab lasts for 45 minutes.

- (c) At what time did Richard Hammond's Blast Lab end?

.....

(1)  
(Total 3 marks)

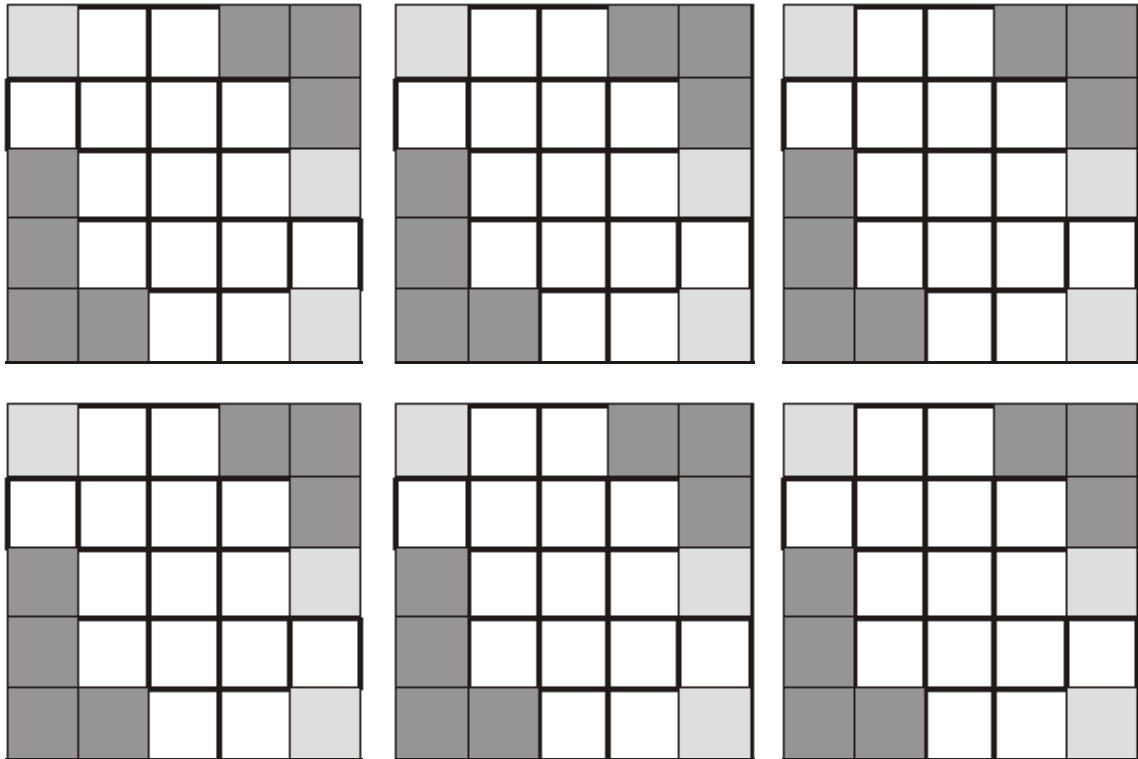
# MARK SCHEME

## M1.

		Working	Answer	Mark	Additional Guidance
FE	(a)		cylinder	1	<b>B1</b> cao
	(b)		9	1	<b>B1</b> cao
	(c)		D, E	1	<b>B1</b> cao
	(d)(i)		Net	5	<b>B3</b> fully correct (B2 5 correct faces) (B1 a net of a cuboid)
	(ii)		14 cm × 18 cm		<b>B1, B1</b> ft on d(i)
Total for Question: 8 marks					

## M2.

	Working	Answer	Mark	Additional Guidance
(a)		Correct reflection	1	<b>B1</b> cao
(b)		Correct square	1	<b>B1</b> cao
(c)	See pattern at end	Correct square	1	<b>B1</b> cao
Total for Question: 3 marks				



M3.

	Working	Answer	Mark	Additional Guidance
(a)		C and D	1	<b>B1</b> cao
(b)		B and E	1	<b>B1</b> cao
(c)		4.5 cm <sup>2</sup>	1	<b>B1</b> cao
Total for Question: 3 marks				

M4.

	Working	Answer	Mark	Additional Guidance
(a)		(6, 7)	1	<b>B1</b> cao
(b)		(3, 5.5)	2	<b>M1</b> Clear attempt to find the mean of either x or y coordinates of P and Q  <b>A1</b> cao  <b>OR</b>  <b>M1</b> identifies the midpoint of PQ on the diagram  <b>A1</b> cao  SC B1 for exactly one coordinate correct
(c)		(6, 0)	2	<b>M1</b> for B correctly placed on the x axis  <b>A1</b> for (6, 0)
Total for Question: 5 marks				

**M5.**

	Answer	Mark	Additional Guidance
(a)	Correct line	1	<b>B1</b> For a single line of length in the range 6.8 cm to 7.2 cm drawn with or without using the given point <i>P</i>
(b)	Correct point	1	<b>B1</b> for point <i>Q</i> identified on their line within the range 2.8 cm to 3.2 cm from <i>P</i>
Total for Question: 2 marks			

**M6.**

	Answer	Mark	Additional Guidance
(a)	16	1	<b>B1</b> cao
(b)	12 cm <sup>2</sup>	2	<b>B1</b> for 12 cao, <b>B1</b> (indep) for cm <sup>2</sup>
(c)	15	2	<b>M1</b> for $5 \times 3$ <b>A1</b> cao [SC: <b>B1</b> for 10, 13 or 14]
Total for Question: 5 marks			

**M7.**

	Answer	Mark	Additional Guidance
(a)	08 30	1	<b>B1</b> for 08 30 oe
(b)	17	1	<b>B1</b> cao
(c)	10 15	1	<b>B1</b> for 10 15 oe
Total for Question: 3 marks			

**M8.**

	Answer	Mark	Additional Guidance
(a)	8	1	<b>B1</b> cao
(b)	<b>C</b>	1	<b>B1</b> for C or pyramid
Total for Question: 2 marks			

**M9.**

	Working	Answer	Mark	Additional Guidance
(a)		58	1	<b>B1</b> 57 to 59 (not inclusive)
(b)		3.6	1	<b>B1</b> 3.5 to 3.7 (not inclusive)
(c)	$7 - 3.6$	3.4	1	<b>B1</b> for 3.3 to 3.5 (not inclusive) or ft on $7 - "(b)"$ provided " $b$ " $< 7$
Total for Question: 3 marks				

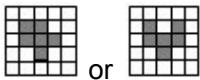

**M10.**

	Working	Answer	Mark	Additional Guidance
(a)		(4, 6)	1	<b>B1</b> cao
(b)		(0, 3)	1	<b>B1</b> cao
(c)	$\left(\frac{0+4}{2}, \frac{3+8}{2}\right)$	(2, 4.5)	2	<b>B2</b> for (2, 4.5) $\pm 0.2$ on each coordinate <b>B1</b> for (2, b) $b \neq 4.5$ or (a, 4.5) $a \neq 2$ or (4.5, 2) or $\left(\frac{0+4}{2}, \frac{3+8}{2}\right)$ seen $\pm 0.2$ on each coordinate
Total for Question: 4 marks				

**M11.**

	Answer	Mark	Additional Guidance
(a)	Diagram ( <i>overlay</i> )	2	<b>B2</b> within guidelines of the overlay ( <b>B1</b> for exactly one given angle correctly drawn within guidelines of overlay)
(b)	90	1	<b>B1</b> for an angle in range 86 to 94 <b>or</b> ft 'angle' measured correctly within $\pm 2^\circ$
Total for Question: 3 marks			

**M12.**

	Answer	Mark	Additional Guidance
(a)	 or	1	<b>B1</b> cao
(b)		1	<b>B1</b> cao
Total for Question: 2 marks			

**M13.**

	Answer	Mark	Additional Guidance
(a)	7	1	<b>B1</b> for $7 \pm 2\text{mm}$
(b)		1	<b>B1</b> for correct position $\pm 2\text{mm}$

(c)		1	<b>B1</b> for all parts within $\pm 2\text{mm}$ , use overlay
<b>Total for Question: 3 marks</b>			

**M14.**

	Answer	Mark	Additional Guidance
(a)(i)	1, 4	2	<b>B1</b> cao
(ii)	3, 0		<b>B1</b> cao
(b)	C correct	1	<b>B1</b> cao
<b>Total for Question: 3 marks</b>			

**M15.**

	Answer	Mark	Additional Guidance
(a)(i)	Kilometres	2	<b>B1</b> (accept km)
(ii)	Litres		<b>B1</b> for litres, (accept kilolitres, $\text{m}^3$ or appropriate abbreviations)
(b)(i)	50	2	<b>B1</b> cao
(ii)	4		<b>B1</b> cao
<b>Total for Question: 4 marks</b>			



**M16.**

	Answer	Mark	Additional Guidance
(a)	Trapezium	1	<b>B1</b>
(b)	60	1	<b>B1</b> for $60 \pm 2$
(c)	obtuse	1	<b>B1</b>
Total for Question: 3 marks			

**M17.**

	Working	Answer	Mark	Additional Guidance
(a)	$10 + 20 + 10 + 20$	60	2	<b>M1</b> for $10 + 20 + 10 + 20$ <b>A1</b> cao
(b)	$10 \times 20$	200	2	<b>M1</b> for $10 \times 20$ <b>A1</b> cao
Total for Question: 4 marks				

**M18.**

	Working	Answer	Mark	Additional Guidance
(a)		"angles on a line sum to	1	<b>B1</b> for angles on a line sum to $180^\circ$ , 180, $120 + 50 = 170$ etc

		180°		
(b)	360 – (70 + 130 + 100)	60	2	<b>M1</b> for 360 – (70 + 130 + 100) <b>A1</b> cao
Total for Question: 3 marks				

**M19.**

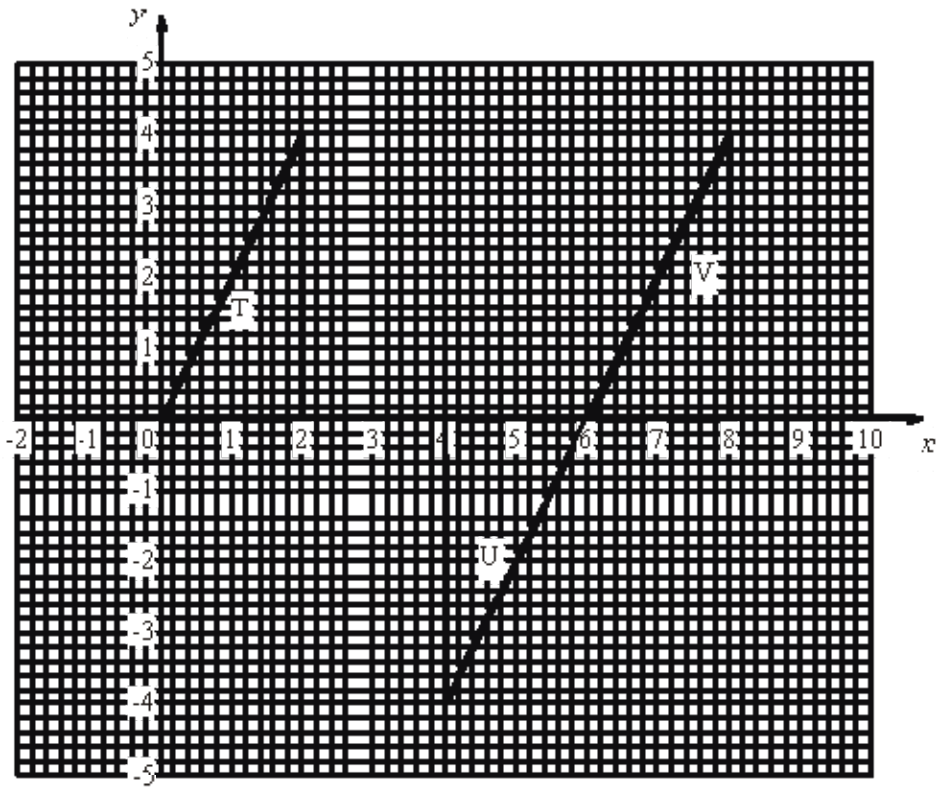
	Answer	Mark	Additional Guidance
(a)	8 cm or 80mm	2	<b>B1</b> for 7.8 – 8.2 or 78 – 82 or 3 – 3 <sup>3</sup> / <sub>10</sub>
(b)	Midpoint	1	<b>B1</b> for appropriate unit cm or mm or inches <b>B1</b> for midpoint marked ± 2mm
Total for Question: 3 marks			

**M20.**



	Answer	Mark	Additional Guidance
(a)(i)	(1, 4)	2	<b>B1</b> for (1, 4) cao
(ii)	(4, 0)		<b>B1</b> for (4, 0) cao
(b)(i)	<i>P</i> marked at (3, 2)	2	<b>B1</b> for <i>P</i> marked at (3, 2)
(ii)	<i>Q</i> marked at (–4, 3)		<b>B1</b> for <i>Q</i> marked at (–4, 3)
Total for Question: 4 marks			

M21.

Working	Answer	Mark	Additional Guidance
Rotates shape about (3,0) by 180° to give <b>U</b>  Rotates <b>U</b> about (6, 0) to give <b>V</b>  (see graph at end)	Translation by $\begin{pmatrix} 6 \\ 0 \end{pmatrix}$	3	<b>B3</b> Translation by $\begin{pmatrix} 6 \\ 0 \end{pmatrix}$  (B2 translation by 6 to the right or just $\begin{pmatrix} 6 \\ 0 \end{pmatrix}$ on its own )  (B1 translation or move to the right 6)  If no marks earned from a description then  B1 <b>U</b> correctly placed  B1 <b>V</b> correctly placed
Total for Question: 3 marks			



**M22.**

	Answer	Mark	Additional Guidance
(a)		1	<b>B1</b> for completed shape <b>cao</b>
(b)		1	<b>B1</b> for line of symmetry drawn
Total for Question: 2 marks			

**M23.**

	Working	Answer	Mark	Additional Guidance
(a)		16 cm	1	<b>B1</b> <b>cao</b> (units included)
(b)		48 cm <sup>3</sup>	4	<b>M1</b> 3-D drawing or sketch <b>M1</b> $4 \times 4 \times 2$ and $2 \times 2 \times 4$ / $4 \times 4 \times 4$ and $2 \times 2 \times 4$ <b>M1</b> adding or subtracting <b>A1</b> <b>cao</b> (units included)
Total for Question: 5 marks				

**M24.**

	Working	Answer	Mark	Additional Guidance
(a)(i)	$180 - 45$	135	2	<b>B1</b> for 135 cao
(ii)		Reason		<b>B1</b> for (angles on a straight) line add to $180^\circ$
(b)	$180 - (80 + 60)$	40	2	<b>M1</b> for $180 - (80 + 60)$ <b>A1</b> for 40 cao
Total for Question: 4 marks				

**M25.**

	Answer	Mark	Additional Guidance
(a)	draw radius	1	<b>B1</b> (do not accept diameter) Ignore extras if correct
(b)	draw chord	1	<b>B1</b> (accept diameter) Ignore extras if correct
Total for Question: 2 marks			

**M26.**

Working	Answer	Mark	Additional Guidance
$6 \times 2$	12	2	<b>M1</b> for $6 \times 2$ or answer of 11 or 13 or 6 seen <b>A1</b> cao
Total for Question: 2 marks			

**M27.**

	Answer	Mark	Additional Guidance
(i)	D	3	<b>B1</b> cao
(ii)	B		<b>B1</b> cao
(iii)	A		<b>B1</b> cao
Total for Question: 3 marks			

**M28.**

	Working	Answer	Mark	Additional Guidance
(i)	$215 + 90 = 305$ $360 - 305 =$	55	3	<b>M1</b> for $360 - (215 + 90)$ <b>A1</b> for 55 cao SC <b>B1</b> If <b>M1</b> not awarded if 90 seen
(ii)		angles at a point add to $360^\circ$		<b>B1</b> for angles (at a point) add to $360^\circ$ oe
Total for Question: 3 marks				

**M29.**

	Working	Answer	Mark	Additional Guidance
--	---------	--------	------	---------------------

(a)		metres (m) grams (g) litres (l)	3	<b>B3</b> all correct, accept abbreviations ( <b>B1</b> for each one correct)
(b)	$4 \times 100$	400	1	<b>B1</b> for 400 cao
(c)	$1500 \div 1000$	1.5	1	<b>B1</b> for 1.5 cao
Total for Question: 5 marks				

**M30.**

	Answer	Mark	Additional Guidance
(a)	29	1	<b>B1</b> for 29 cao
(b)	arrow	1	<b>B1</b> for arrow in correct position $\pm \frac{1}{2}$ division
Total for Question: 2 marks			

**M31.**

Working	Answer	Mark	Additional Guidance
$180 - 152$	28	2	<b>M1</b> for $180 - 152$ or $x = [360 - 2(152)] \div 2$ or $56 \div 2$ seen <b>A1</b> cao
Total for Question: 2 marks			

**M32.**

	Working	Answer	Mark	Additional Guidance
(a)(i)		metre	2 1	<b>B1</b> for metre or m
(ii)		kilogram		<b>B1</b> for kilogram or kg or Newton or N
(b)	$2 \times 10$	20		<b>B1</b> for 20 cao
Total for Question: 3 marks				

**M33.**

	Answer	Mark	Additional Guidance
(a)	diameter	1	<b>B1</b> for a diameter drawn
(b)	Sector	1	<b>B1</b> for sector drawn (ignore shading)
Total for Question: 2 marks			

**M34.**

	Answer	Mark	Additional Guidance
(a)	16	1	<b>B1</b> for 16 cao
(b)	15	1	<b>B1</b> for 15 cao



(c)	rectangle	1	<b>B1</b> for rectangle, quadrilateral, trapezium, parallelogram or oblong
<b>Total for Question: 3 marks</b>			

**M35.**

	Answer	Mark	Additional Guidance
(a)	Radius	1	<b>B1</b> ignore spelling
(b)	Tangent	1	<b>B1</b> ignore spelling
<b>Total for Question: 2 marks</b>			

**M36.**

	Answer	Mark	Additional Guidance
(a)	A and C	1	<b>B1</b> c for A and C or C and A
(b)	Shape drawn	1	<b>B1</b> for correct shape, any orientation or reflection, $\pm 2$ mm
<b>Total for Question: 2 marks</b>			

**M37.**

Answer	Mark	Additional Guidance
correct net	3	<b>B3</b> for correct net ( <b>B2</b> for 5 faces drawn, all correct or 6 faces drawn with 4 or 5 faces correct ( <b>B1</b> for a fully correct net with 6 faces for any cuboid) Note: Accept outline only drawn
Total for Question: 3 marks		

**M38.**

	Answer	Mark	Additional Guidance
(a)	60	1	<b>B1</b> for 60 cao
(b)	reason	1	<b>B1</b> for no 90° angle oe
Total for Question: 2 marks			

**M39.**

	Answer	Mark	Additional Guidance
(i)	E or C	1	<b>B1</b> for E or C or both
(ii)	B	1	<b>B1</b> cao
(iii)	A	1	<b>B1</b> cao
(iv)	C or A	1	<b>B1</b> for C or A or both
Total for Question: 4 marks			

**M40.**

Answer	Mark	Additional Guidance
Diameter drawn	1	<b>B1</b> for a diameter drawn
Total for Question: 1 mark		

**M41.**

Answer	Mark	Additional Guidance
12	2	<b>B2</b> for 12 cao ( <b>B1</b> for 10 or 11)
Total for Question: 2 marks		

**M42.**

Working	Answer	Mark	Additional Guidance
$25 \div 5$ $15 \div 5$ $12 \div 5$	No	4	<b>M2</b> for 5, 3, 2 (could be on the diagram) (M1 for $25 \div 5$ or $15 \div 5$ or $12 \div 5$ ) <b>C2</b> QWC: No as only 30 whole bricks will fit oe statement <b>or</b> No and dimensions of a possible box

5 × 3 × 2		given <b>or</b> No as only 2 layers of 15 will fit oe (C1 for correct conclusion from candidate's working even if incorrect eg vol: 4500÷125=36 so yes)
<b>Total for Question: 4 marks</b>		

**M43.**

	Answer	Mark	Additional Guidance
(a)	Pair of parallel lines	1	<b>B1</b> for any pair of parallel lines marked
(b)	Acute	1	<b>B1</b> cao
(c)	Correct angle marked	1	<b>B1</b> cao
<b>Total for Question: 3 marks</b>			

**M44.**

	Answer	Mark	Additional Guidance
(a)	C	1	<b>B1</b> cao
(b)	D	1	<b>B1</b> cao
(c)	2	1	<b>B1</b> cao
<b>Total for Question: 3 marks</b>			

**M45.**

Working	Answer	Mark	Additional Guidance
Bottom / top is $5 \times 10 = 50$ ; $50 \times 2 = 100$ ; $280 - 100 = 180$ Other dimensions: $10 + 10 + 5 + 5 = 30$ ; $180 \div 30 =$	6	4	<b>M1</b> recognition that the bottom/top is $5 \times 10 (= 50)$ , 50 seen <b>M1</b> for $280 - 2 \times "50" (= 180)$ <b>M1</b> for "180" $\div$ "other dimensions" or valid attempt to find height using these dimensions <b>A1</b> cao
Total for Question: 4 marks			

**M46.**

	Answer	Mark	Additional Guidance
(a)	12	1	<b>B1</b> cao
(b)	$200 \text{ cm}^3$	3	<b>M1</b> for $10 \times 4 \times 5$ <b>A1</b> cao <b>B1</b> (indep) for $\text{cm}^3$
Total for Question: 4 marks			

**M47.**

	Answer	Mark	Additional Guidance
(i)	130	1	<b>B1</b> for 130 cao

(ii)	Reason	1	<b>B1</b> for reason eg “ <u>angles</u> on a (straight) <u>line</u> (sum to) <u>180°</u> ” NB: those underlined are the essential elements of an answer.
Total for Question: 2 marks			

**M48.**

	Answer	Mark	Additional Guidance
(i)	Acute	1	<b>B1</b> cao
(ii)	53°	1	<b>B1</b> for an angle 51°-55°
Total for Question: 2 marks			

**M49.**

	Answer	Mark	Additional Guidance
(a)	5	1	<b>B1</b> cao
(b)	Line of symmetry	1	<b>B1</b> for line of symmetry
Total for Question: 2 marks			

**M50.**

	Answer	Mark	Additional Guidance
(a)	Kite drawn	1	<b>B1</b> Accept a rhombus, square, etc.
(b)	Parallelogram	1	<b>B1</b>
Total for Question: 2 marks			

**M51.**

	Working	Answer	Mark	Additional Guidance
(a)		Vertical and horizontal lines of symmetry only	1	<b>B1</b> cao (– 1 for extra lines drawn)
(b)		B	1	<b>B1</b> cao
(c)		Eg. Equilateral triangle	2	<b>B2</b> for any shape satisfying both criteria [ <b>B1</b> for a shape with rotational symmetry of order 3 with no line symmetry]
Total for Question: 4 marks				

**M52.**

	Working	Answer	Mark	Additional Guidance
(a)		Trapezium	1	<b>B1</b> cao
(b)		AC	1	<b>B1</b> cao

(c)		4.5cm or 45mm	1	<b>B1</b> for B1 cao
(d)		56.3°	1	<b>B1</b> for an angle in the range 55 to 58 inc.
<b>Total for Question: 4 marks</b>				

**M53.**

	<b>Working</b>	<b>Answer</b>	<b>Mark</b>	<b>Additional Guidance</b>
(a)		Lunar Jim	1	<b>B1</b> cao
(b)	$20\ 15 - 19\ 40 = 20 + 15$	35	1	<b>B1</b> cao
(c)	$20\ 30 + 45 = 21\ 00 + 15$	21 15	1	<b>B1</b> cao
<b>Total for Question: 3 marks</b>				