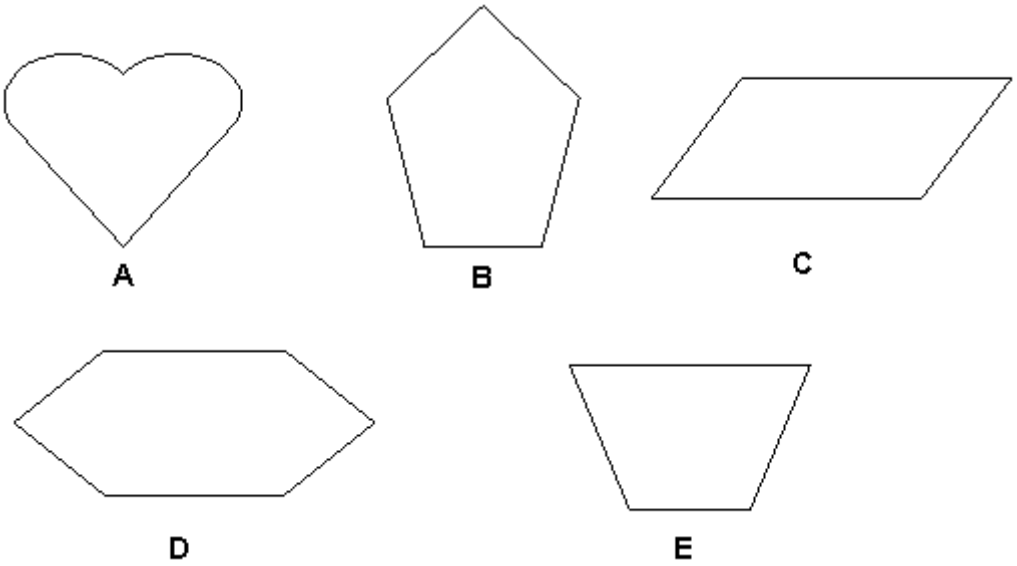
Q1. Here are five shapes.



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)

Q2. Here is a diagram of a cuboid.

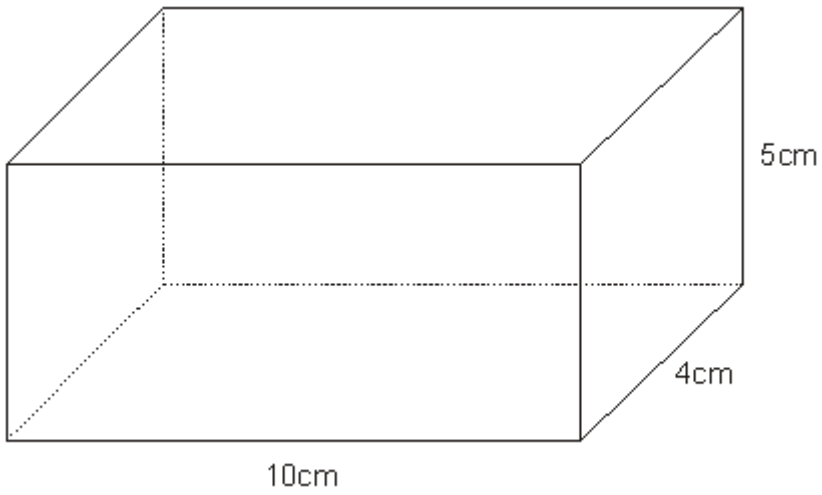


Diagram **NOT** accurately drawn

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

.....

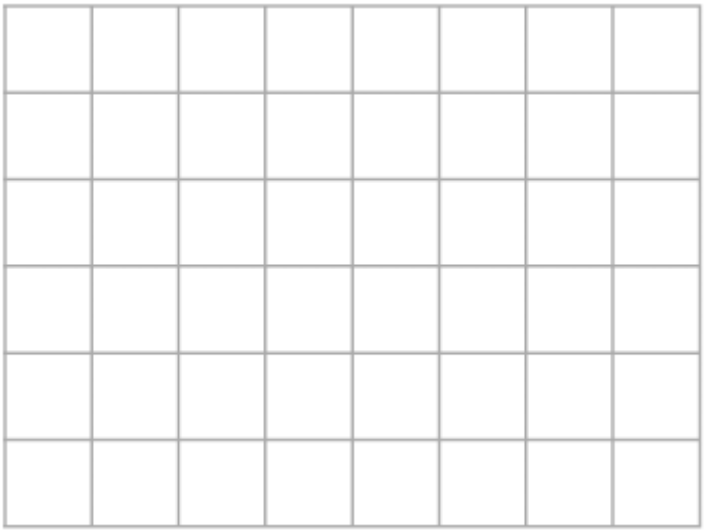
(1)

(b) Calculate the volume of the cuboid.

.....

(3)
(Total 4 marks)

Q3. (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)

Q4.

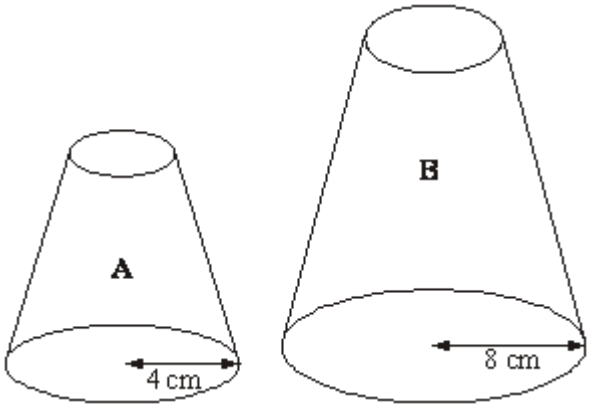


Diagram **NOT** accurately drawn

Two solid shapes, **A** and **B**, are mathematically similar.
The base of shape **A** is a circle with radius 4 cm.
The base of shape **B** is a circle with radius 8 cm.

The surface area of shape **A** is 80 cm^2.

(a) Work out the surface area of shape **B**.

..... cm^2

(2)

The volume of shape **B** is 600 cm^3.

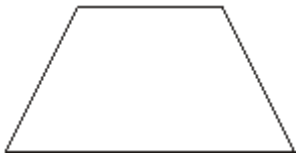
(b) Work out the volume of shape **A**.

..... cm^3

(2)
(Total 4 marks)

Q5. (a) Write down the mathematical name of each of these quadrilaterals.

(i)

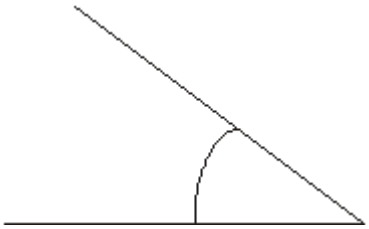


(ii)

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

(2)

(b) What type of angle is this?



.....

(1)
(Total 3 marks)

Q6.

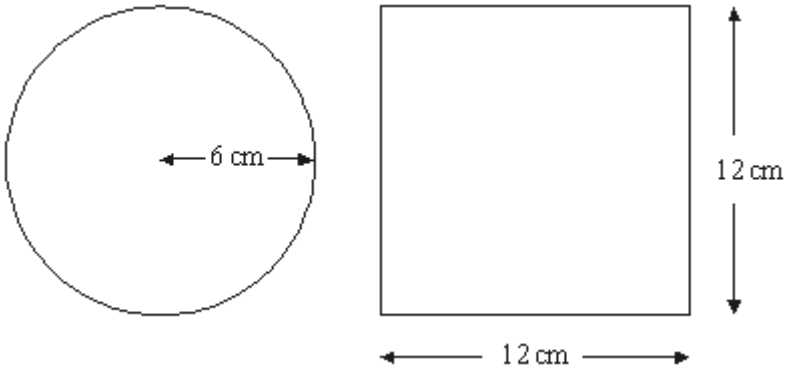


Diagram **NOT** accurately drawn

A circle has a radius of 6 cm.

A square has a side of length 12 cm.

Work out the difference between the area of the circle and the area of the square.
Give your answer correct to one decimal place.

..... cm^2

(Total 4 marks)

Q7.

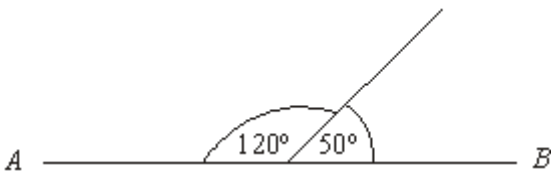


Diagram **NOT** accurately drawn

AB is a straight line.

(a) This diagram is wrong.
Explain why.

.....

(1)

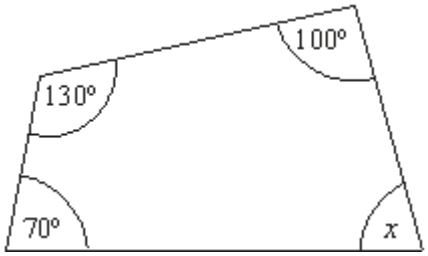


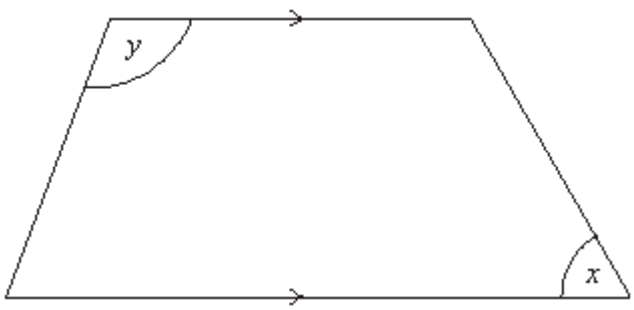
Diagram **NOT** accurately drawn

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

..... °

(2)
(Total 3 marks)

Q8.



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

.....

(1)

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

..... °

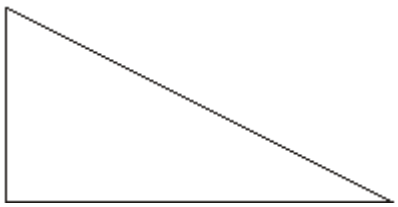
(1)

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

.....

(1)
(Total 3 marks)

Q9. (a) Here is a right-angled triangle.



Mark the right angle with a letter R.

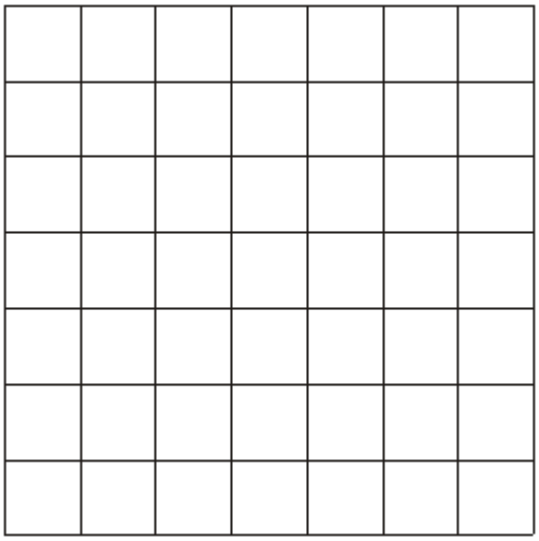
(1)

(b) Here is a trapezium.

Mark an acute angle with a letter A.

(1)

(c) On the grid, draw a kite.



(1)
(Total 3 marks)

Q10.

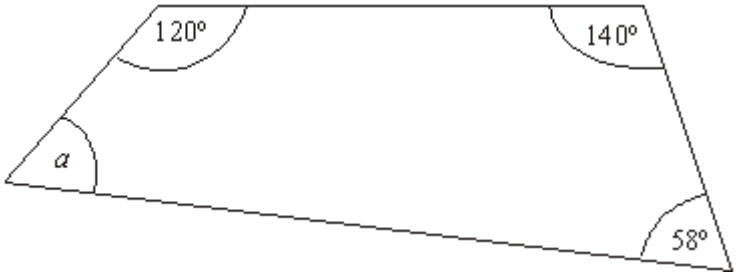


Diagram **NOT** accurately drawn

Work out the size of the angle *a*.

.....°

(Total 2 marks)

M1.

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

M2.

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

M3.

	Answer	Mark	Additional Guidance

(a)	Kite drawn	1	**B1** Accept a rhombus, square, etc.
(b)	Parallelogram	1	**B1**
			Total for Question: 2 marks

M4.

	Working	Answer	Mark	Additional Guidance
(a)	$\left(\frac{8}{4}\right)^2 \times 80$	320	2	**M1** for $\left(\frac{8}{4}\right)^2$ or $\left(\frac{4}{8}\right)^2$ oe or $8^2:4^2$ or $4^2:8^2$ or 1:4 or 4:1 **A1** for 320 cao
(b)	$\left(\frac{4}{8}\right)^3 \times 600$	75	2	**M1** for $600 \times \left(\frac{4}{8}\right)^3$ or $600 \times \left(\frac{8}{4}\right)^3$ oe **A1** for 75 cao
				Total for Question: 4 marks

M5.

	Answer	Mark	Additional Guidance
(a)(i)	Trapezium	2	**B1** Trapezium. Accept misspelling as long as the word given is still recognisable.
(ii)	Parallelogram		**B1** Parallelogram. Accept misspelling as long as the word given is still recognisable.

(b)	Acute	1	**B1** cao
			Total for Question: 3 marks

M6.

Working	Answer	Mark	Additional Guidance
$\pi \times 6^2$ $12^2 - \pi \times 6^2$	30.9	4	**M1** for 12^2 or 144 seen **M1** for $\pi \times 6^2$ or 113. … seen **M1** (dep on **M2**) for "12^2" – "$\pi \times 6^2$" **A1** for 30.88 – 31
			Total for Question: 4 marks

M7.

	Working	Answer	Mark	Additional Guidance
(a)		"angles on a line sum to 180°"	1	**B1** for angles on a line sum to 180°, 180, 120 + 50 = 170 etc
(b)	360 – (70 + 130 + 100)	60	2	**M1** for 360 – (70 + 130 + 100) **A1** cao
				Total for Question: 3 marks

M8.

	Answer	Mark	Additional Guidance
(a)	Trapezium	1	**B1**
(b)	60	1	**B1** for 60 ± 2
(c)	obtuse	1	**B1**
			Total for Question: 3 marks

M9.

	Answer	Mark	Additional Guidance
(a)	right angle marked	1	**B1** for the right angle marked with square or R
(b)	acute angle marked	1	**B1** for either (or both) of the acute angles marked
(c)	kite drawn	1	**B1** for a kite drawn (accept square or rhombus or arrowhead)
			Total for Question: 3 marks

M10.

Working	Answer	Mark	Additional Guidance
360 – (120 + 140 + 58)	42	2	**M1** 360 – "(120 + 140 + 58)" or equivalent) or for (a + 58 + 120 + 140 = 360) oe seen **A1** cao [Note: The subtraction MUST be from 360]
			Total for Question: 2 marks

##

This was a question which tested geometrical knowledge. For many all three marks were gained.

##

It was clear that many candidates mis-read the question, since “8” for the number of vertices or “6” for the number of sides were commonly seen. Some only counted the bold (seen) edges. In part (b) there were some attempts at finding the surface area, or the total of the edges (5 + 4 + 100). Many stated “10 × 4 × 5” but again poor arithmetic then resulted in the wrong answer. There was also a units mark for this question, but many candidates failed to spot that the units were needed, or perhaps were not used to giving them anyway. When the units were stated cm or cm2 were more commonly seen than cm^3.

##

Many candidates drew a kite, though a square or rhombus was also a popular shape drawn. In most cases the shape was drawn freehand. In part (b) it was not common for the correct name; trapezium, square, rhombus were regularly seen.

E4. Only the best candidates were able to score full marks in this question. For the surface area in part (a), the vast majority of candidates simply multiplied 80 by 2 (the linear scale of the enlargement). Similarly for the volume in part (b), the vast majority of candidates simply divided 600 by 2.

E5. There were predictably many confused spellings associated with naming the shapes; examiners did not penalise incorrect spelling unless it led to ambiguity. Overall this question was not well answered, with many incorrect names given for the shapes. Part (b) was better answered, with about 2/3 of the candidates naming the angle correctly. The most common error was in naming it as an obtuse angle.

E6. **Foundation**

There was a wide variety of incorrect answers to this question although most candidates were able to score at least one mark, generally for sight of 12 × 12 (although it was disturbing to note how many candidates wrote 12 × 12 = 48 even when they could use a calculator and that 42% of the candidates scored no marks at all!). 108 was a common incorrect answer from $144 – 6^2$. A significant number were not able to find the area of the square, let alone the area of the circle. Many candidates realised they had to use π for the area of the circle but then used the formula for the circumference of the circle. As a result it was not uncommon to see an answer of 106.3. Others squared π or used π in their attempt at finding the area of the square! However just over 20% of the candidates did score all 4 available marks which was pleasing to see.

Higher

Most students managed to correctly find the area of the square as 12squared or 12 × 12, a common error was to double 12 instead of squaring. Others found the perimeter rather than the area. A significant number of candidates either used 6squared or 2 × pi × 6 for the area of the circle. For the final method mark, some candidates didn't realise they had to subtract. Most who gained the 3 method marks also gained the accuracy mark. The transcription error of 133(..) instead of 113(..) was frequently seen and led to some candidates losing the final accuracy mark. The correct answer was seen from about 57% of candidates.

E7. Although small numbers of candidates either left this question unanswered or merely repeated statements from the question, for example that the angles were not drawn accurately, the great majority of candidates could offer a clear and accurate explanation in part (a). It was good to see a high rate of success in part (b) with over three quarters of candidates gaining both marks. Common incorrect answers included 75º, apparently found by measuring the angle and 160º from those candidates who made an arithmetic error in their calculation and 180º from those candidates under the illusion that the sum of the angles in a quadrilateral is 380º.

E8. This question was the first on the paper where a significant number of candidates did not give an answer to one or more parts. The shape was named correctly by 48% of candidates. Of those candidates who failed to gain a mark here, the majority stated that the shape was a parallelogram. 78% of candidates scored the mark for measuring the size of the angle marked x and 55% of candidates could correctly identify the angle marked y as an obtuse angle. Incorrect spellings were accepted in all cases where the candidate's intention was clear and the answer unambiguous. Answers such as "obcute", "obstute", and "abcute" were not uncommon.

E9. Most parts of this question were well attempted, errors coming from not understanding the technical terms. For example in part (b) a minority of candidates marked obtuse angles. In part (c) it was important to draw a shape in which examiners could identify two pairs of sides that were approximately the same length, but those candidates who failed to use the grid as a guide, or whose diagrams were so roughly drawn failed to make this clear.

E10. **Specification A**

Many candidates were able to gain full marks in this question; however many did not as a result, once again, of poor arithmetic. Errors were made in summing the three given angles but the majority of mistakes were for inaccurate subtraction of 318 from 360; 52, 58 and 62 being seen often.

The greater concern in this question is the vast number of candidates thinking that 380° is the sum of the angles of a quadrilateral.

Specification B

This question was generally done well. Most candidates attempted to add the three given

angles and subtract the result from 360°.

Repeated subtraction from 360 was less common. Some candidates had difficulty subtracting 318 from 360. Common incorrect answers here were 32, 52 and 62. A significant number of candidates thought that the sum of the angles in the quadrilateral was 380°.