**Q1.**   The diagram shows some nets and some solid shapes.
An arrow has been drawn from one net to its solid shape.

Draw an arrow from each of the other nets to its solid shape.
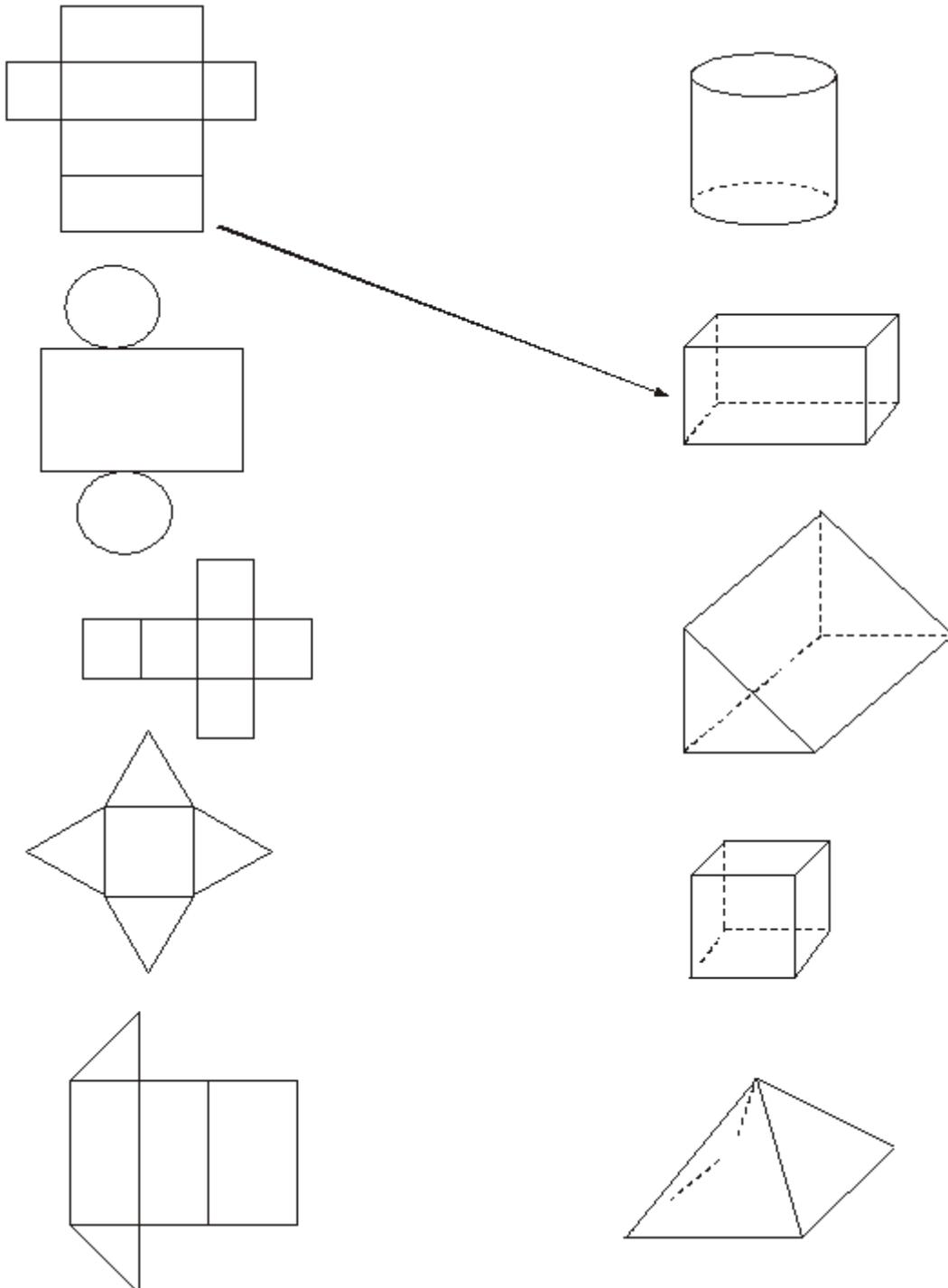
(Total 3 marks)

Q2.   Here is a cuboid.


2 cm

3 cm

4 cm
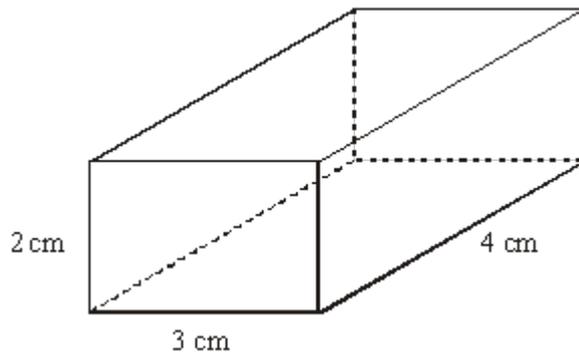
Diagram **NOT** accurately drawn

Draw an accurate net of this cuboid.
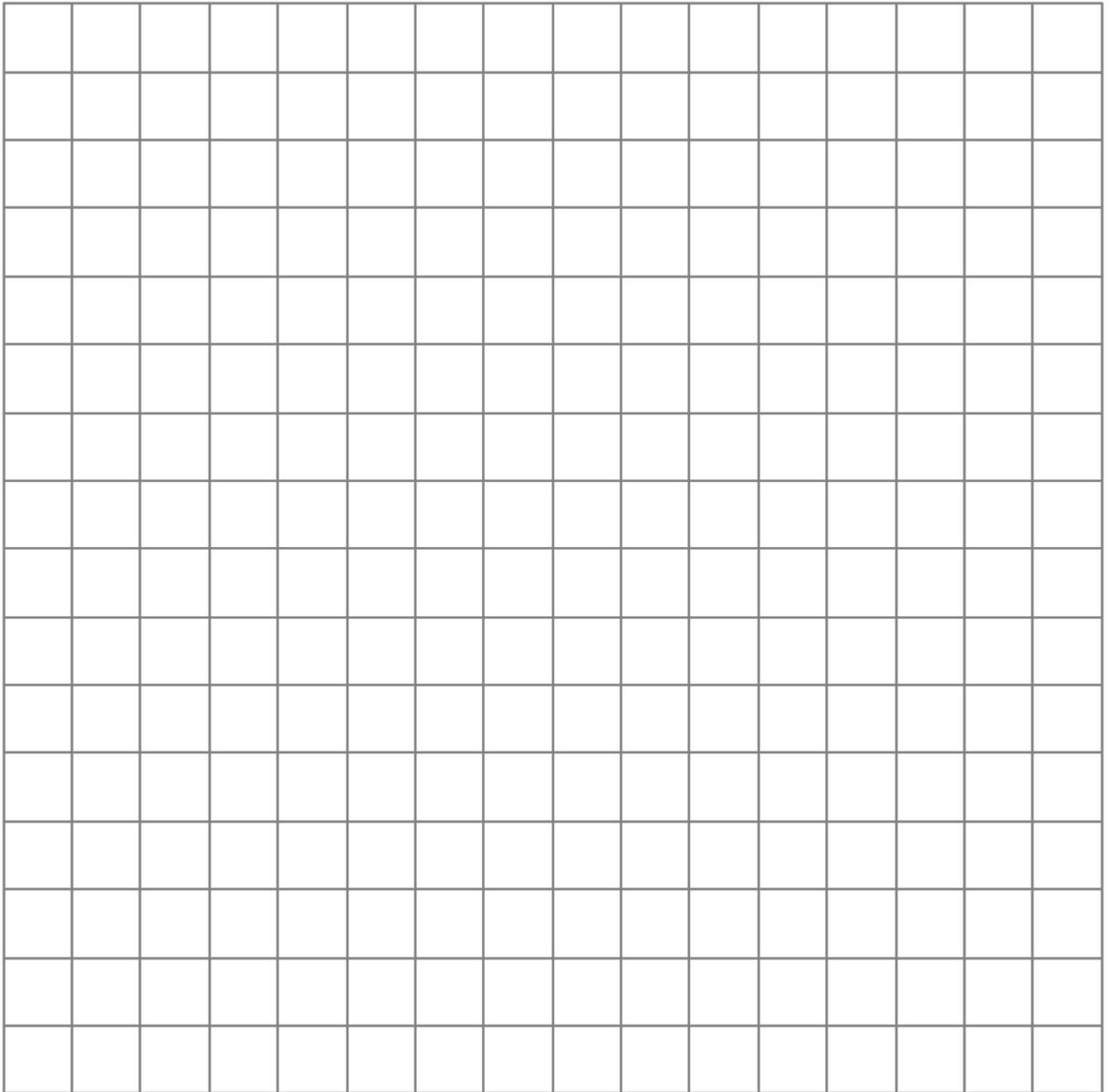
**(Total 3 marks)**

Q3.   Here is a solid cuboid.
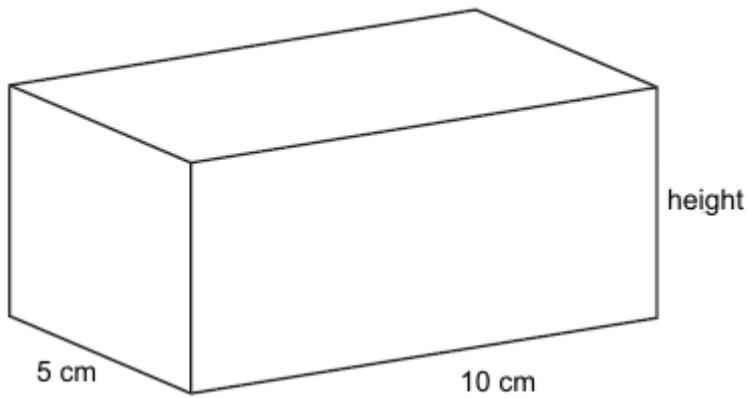
Diagram **NOT** accurately drawn

The cuboid has a width of 5 cm and a length of 10 cm.
The cuboid has a total surface area of 280 cm^2.

Work out the height of the cuboid.

.... cm

(Total 4 marks)

Q4.   Here are 8 polygons.
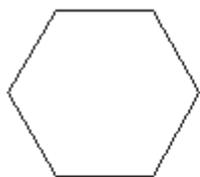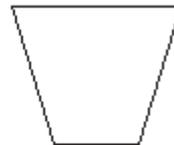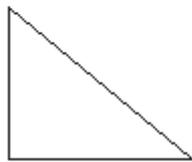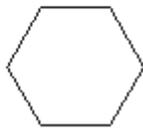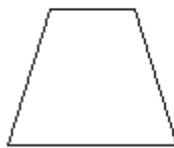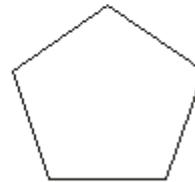
(a)   Write down the mathematical name for shape **A**.

....
(1)

(b)   Write down the letter of the shape that is an octagon.

....
(1)

(c)   Write down the letters of the pair of congruent shapes.

.... and ....
(1)
(Total 3 marks)

Q5.   This is an accurately drawn quadrilateral.
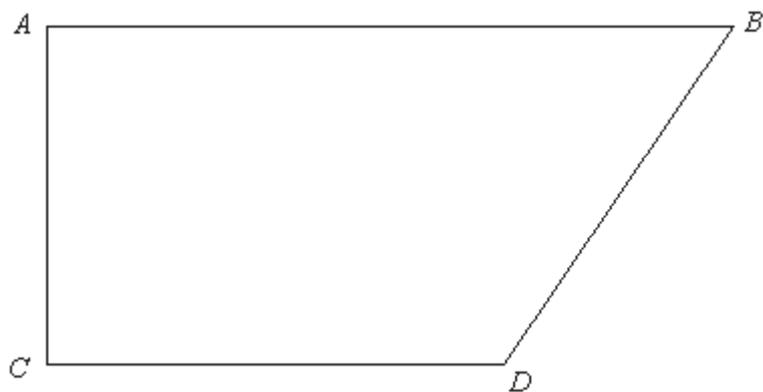
(a)   Write down the mathematical name of this quadrilateral.

....
(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)

Q6.
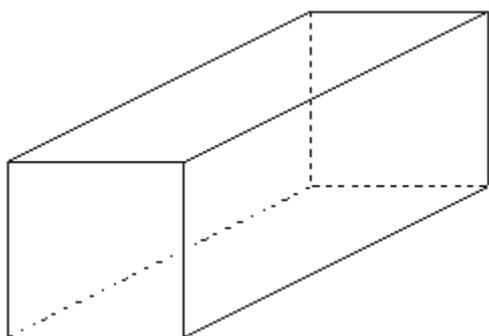
Here is a diagram of a cuboid.

Write down the number of

(i)   faces   ....

(ii)   edges   ....

(iii)   vertices   ....
(Total 3 marks)

Q7.   (a)   Write down the mathematical name of each of these quadrilaterals.
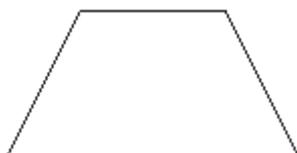
(i)   (ii)

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

(2)

(b)   What type of angle is this?

....
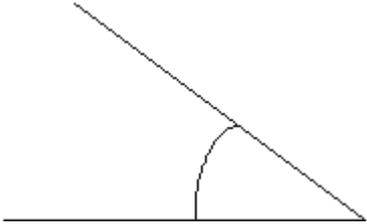
(1)
(Total 3 marks)

Q8.   Write down the name of each of these two 3-D shapes.
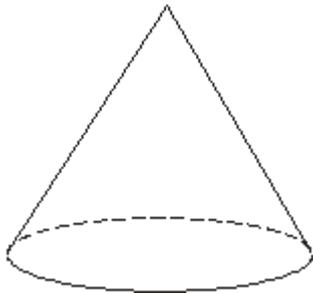
(i)   (ii)
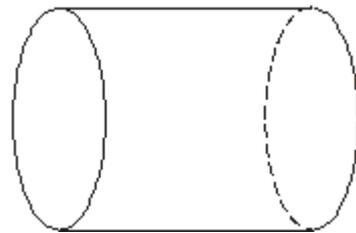
(i)……………………………………………   (ii) …………………………………………..
(Total 2 marks)

Q9.
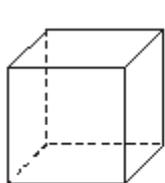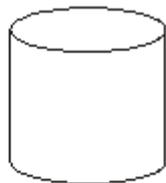
A	**B**	**C**	**D**

Diagram **NOT** accurately drawn

The diagram shows four 3-D solid shapes.

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

....

(1)
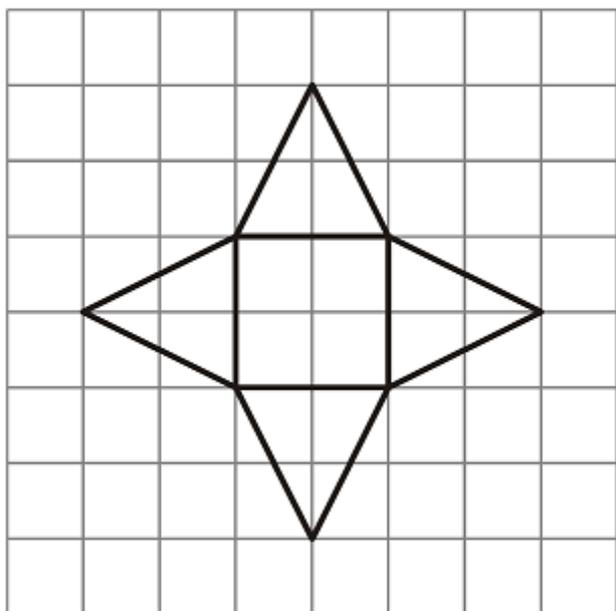
Here is the net of one of the shapes, **A**, **B**, **C** or **D**.

(b)   Which shape?

....

(1)
(Total 2 marks)

Q10.   These triangles have been drawn on a centimetre grid.
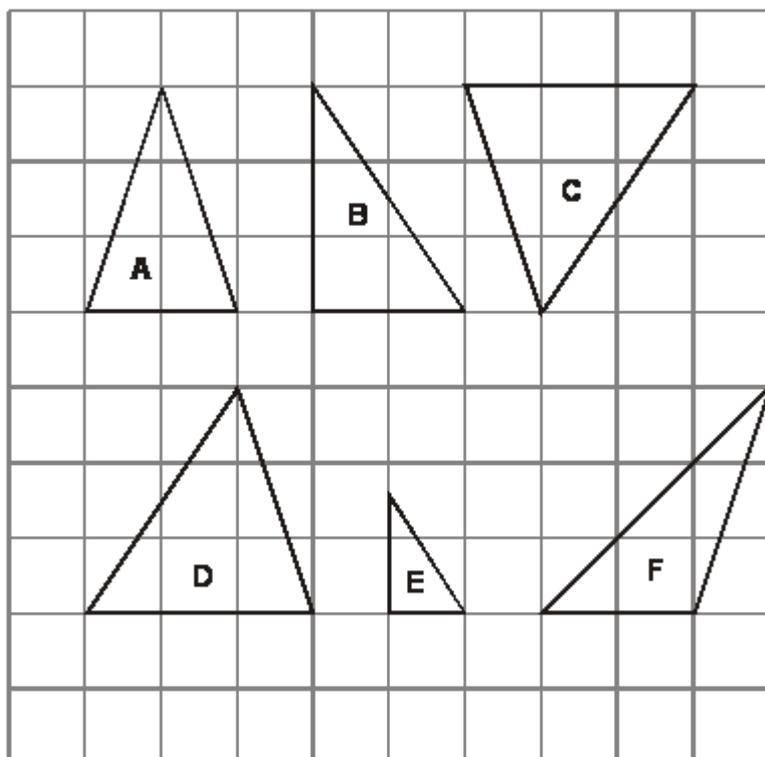
(a)   Write down the letters of the **two** triangles that are congruent.

.... 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)

Q11.
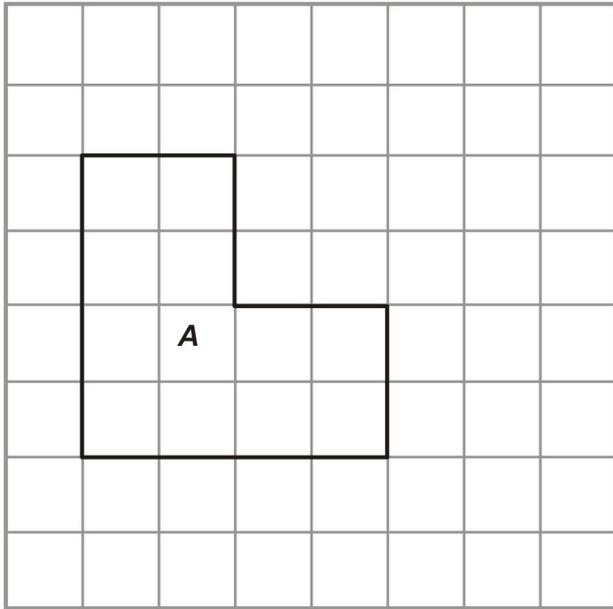
Shape *A* has been drawn on a centimetre grid.

(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.

Plan

Front Elevation

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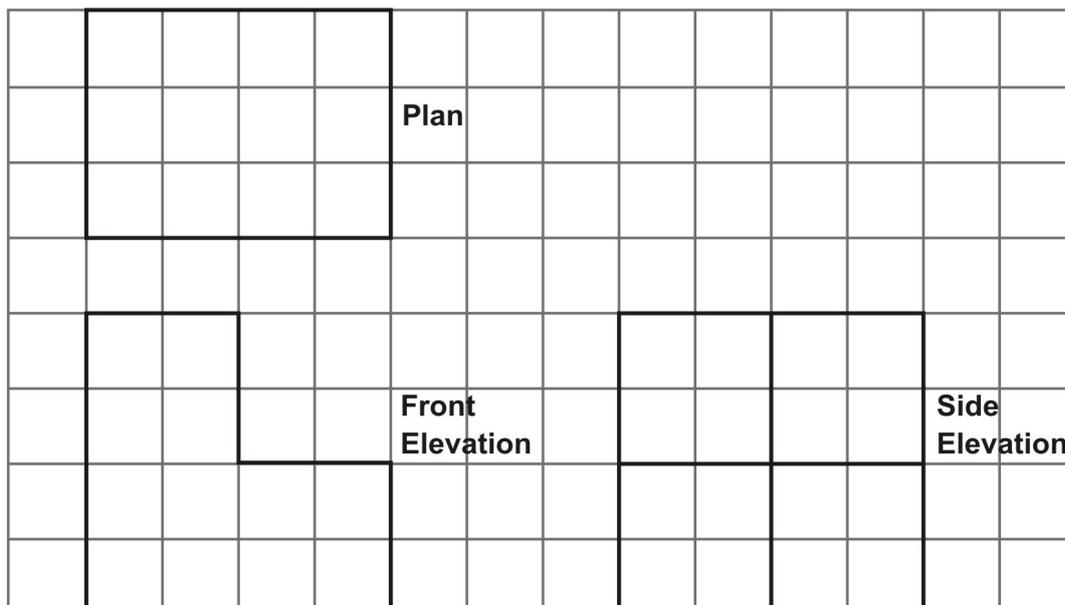
(b)   Find the volume of the 3-D shape.

....

(4)
(Total 5 marks)

Q12.   Ben is planning to make some blocks for a child.

The diagram shows some 3-D shapes.
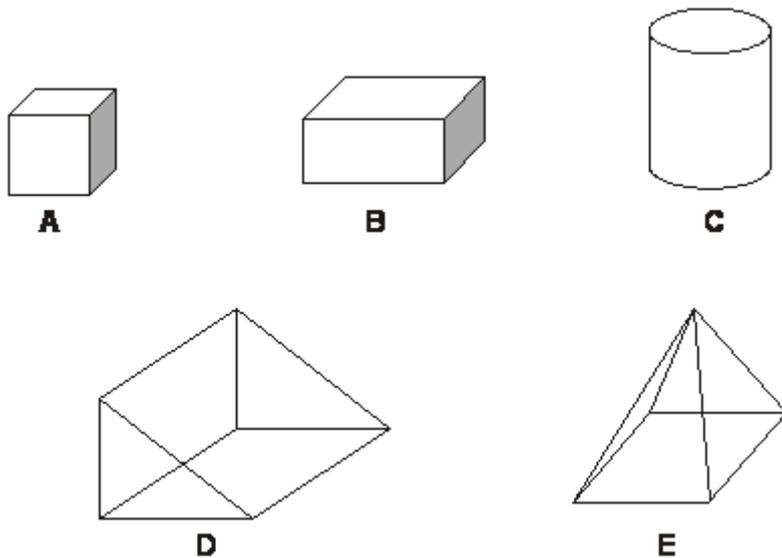
(a)   Write down the mathematical name of the 3-D shape **C**.

....

(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)

 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)

M1.

Answer	Mark	Additional Guidance
	3	**B3** all 4 correct **B2** for 2 or 3 correct (**B1** for 1 correct)
		Total for Question: 3 marks

M2.

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

M3.

Working	Answer	Mark	Additional Guidance
Bottom / top is 5 × 10 = 50; 50 × 2 = 100; 280 – 100 = 180	6	4	**M1** recognition that the bottom/top is 5 × 10 (= 50), 50 seen

Other dimensions: 10 + 10 + 5 + 5 = 30; 180 ÷ 30 =		**M1** for 280 – 2 × "50" (= 180) **M1** for "180" ÷ "other dimensions" or valid attempt to find height using these dimensions **A1** cao
		Total for Question: 4 marks

M4.

	Working	Answer	Mark	Additional Guidance
(a)		Regular hexagon	1	**B1** (accept hexagon)
(b)		D	1	**B1** cao
(c)		D and G	1	**B1** for both, in any order
				Total for Question: 3 marks

M5.

	Working	Answer	Mark	Additional Guidance
(a)		Trapezium	1	**B1** cao
(b)		*AC*	1	**B1** cao
(c)		4.5cm or 45mm	1	**B1** for B1 cao
(d)		56.3°	1	**B1** for an angle in the range 55 to 58 inc.

			Total for Question: 4 marks

M6.

	Answer	**Mark**	**Additional Guidance**
(i)	6	3	**B1** cao
(ii)	12		**B1** cao
(iii)	8		**B1** cao
			Total for Question: 3 marks

M7.

	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

M8.

	Answer	Mark	Additional Guidance
(i)	cone	1	**B1** for cone or alternative spellings only that sound like "cone".
(ii)	cylinder	1	**B1** for cylinder or alternative spellings only that sound like "cylinder". Accept circular based prism.
			Total for Question: 2 marks

M9.

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

M10.

	Working	Answer	Mark	Additional Guidance
(a)		C and D	1	**B1** cao

(b)		B and E	1	**B1** cao
(c)		4.5 cm^2	1	**B1** cao
				Total for Question: 3 marks

M11.

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

M12.

		Working	Answer	Mark	Additional Guidance
FE	(a)		cylinder	1	**B1** cao
	(b)		9	1	**B1** cao
	(c)		D, E	1	**B1** cao
	(d)(i)		Net	5	**B3** fully correct

					(B2 5 correct faces) (B1 a net of a cuboid)
	(ii)		14 cm × 18 cm		**B1, B1 ft** on d(i)
					Total for Question: 8 marks

E1.   This question was well answered by all.

E2.   Drawing an accurate net of the cuboid generally fell into two categories, those who produced a ruled accurate diagram and those who simply drew the same 2-D shape again on the squared outline provided. In between there were many nets with just five faces which were partially rewarded if the accuracy was there. Those candidates who ignored the given dimensions but drew an accurate net of a cuboid were awarded 1 mark. It was disappointing to note that nearly half the candidates failed to score any marks at all on this question.

##

This was almost always treated as if the 280 was volume. Some appeared to recognise that is wasn't volume and they took the area from 280, but then reverted to volume. Some thought that the height must be the same as the width and gave the answer 5 cm. Very few correct answers.

E6.   Many candidates were unable to understand the terms "face", "edge" or "vertex". About half of candidates gained the mark in (i), but answers given to (ii) were many and varied, almost arbitrary.

E7.   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.

E8.　　　Specification A

Poor spelling was not penalised as long as the word could be unambiguously associated with the solid. Nevertheless it was disappointing that 20% of candidates were unable to name these common solids correctly.

Specification B

Recognition of mathematical shapes and the use of the correct mathematical name was often evident with over 70% of the candidates scoring in each part. In part (i) the cone was often referred to as a pyramid or circular pyramid whilst in part (ii) the cylinder, with all its spelling variations, was sometimes referred to as a tube or a cuboid.

**E9.　　　**Only one in three candidates was able to give the correct number of vertices of the cube; 6 and 12 being the most common mistakes. Part (b) was very well answered.