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International Examinations Papers

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MATHEMATIC A
TOPIC- GEOMETRY
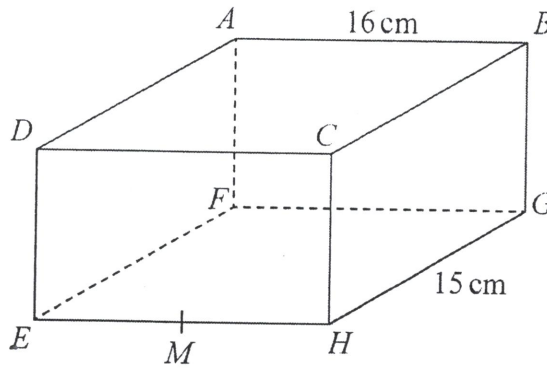# (3D Shapes & Volume)

22 *ABCDEFGH* is a cuboid.

Diagram **NOT** accurately drawn

AB = 16 cm and *HG* = 15 cm.
M is the midpoint of *EH*.

BM makes an angle of 24° with the base *EFGH*.

Calculate the height, *BG*, of the cuboid.
Give your answer correct to 3 significant figures.

.... cm

(Total for Question 22 is 4 marks)

4 The diagram shows a cuboid and a triangular prism.
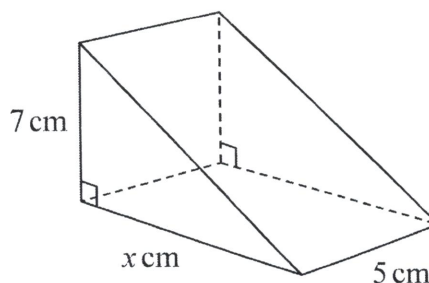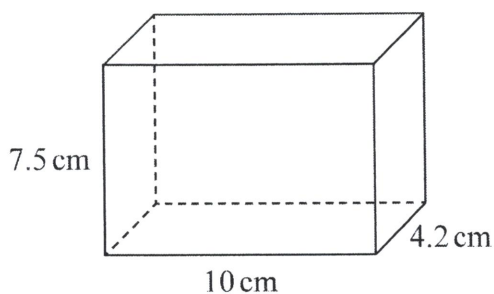
Diagram **NOT** accurately drawn

7.5 cm

10 cm

4.2 cm

7 cm

x cm

5 cm

The volume of the cuboid is equal to the volume of the triangular prism.
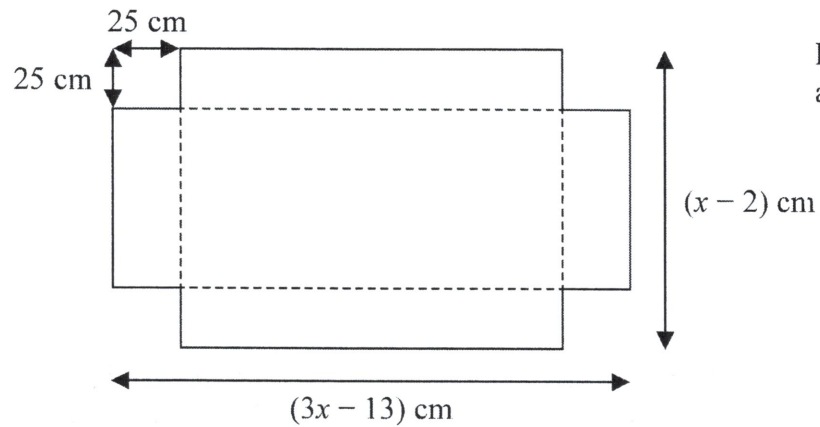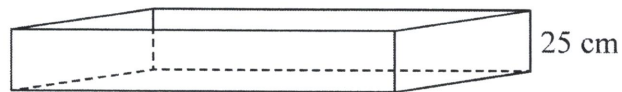
Work out the value of x.

(Total for Question 4 is 4 marks)

21 A rectangular piece of card has length $(3x - 13)$ cm and width $(x - 2)$ cm.
A square, with sides of length 25 cm, is removed from each corner of the card.

25 cm

25 cm

Diagram **NOT**
accurately drawn

$(x - 2)$ cm

$(3x - 13)$ cm

The card is then folded along the dashed lines to make an open box with height 25 cm as shown below.

Diagram **NOT**
accurately drawn

25 cm

(a) Show that the length of the open box is $(3x - 63)$ cm.

(1)

The volume of the open box is 81 900 cm³

(b) Find the value of x.
    Show clear algebraic working.

$x = $ ....

(Total for Question 21 is 6 marks)

TOTAL FOR PAPER IS 100 MARKS

11

3.5 cm

8.2 cm
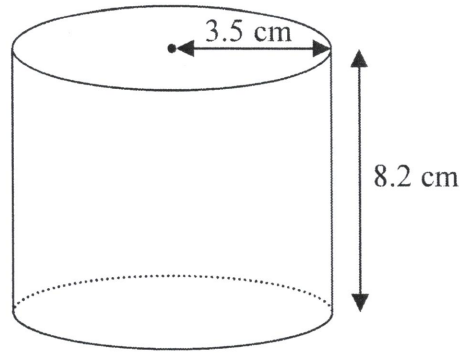
A solid cylinder has radius 3.5 cm and height 8.2 cm.

Work out the **total** surface area of the cylinder.
Give your answer correct to 3 significant figures.

.... cm²

(Total for Question 11 is 3 marks)
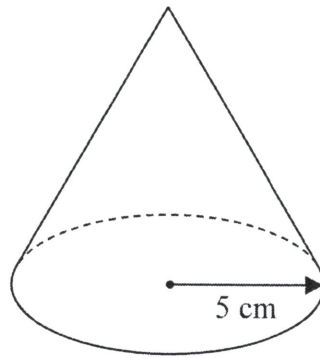
19 The diagram shows a solid cone.

Diagram **NOT** accurately drawn

5 cm

The radius of the base of the cone is 5 cm.
The total surface area of the cone is 90π cm²

Work out the volume of the cone.
Give your answer as a multiple of π.

.... cm³

(Total for Question 19 is 5 marks)
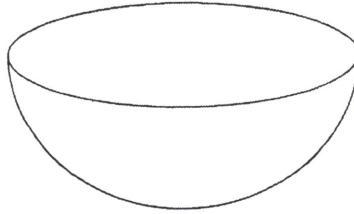
23 The diagram shows a solid hemisphere.

Diagram **NOT** accurately drawn

The hemisphere has a **total** surface area of $\dfrac{16}{3}\pi\,\text{cm}^2$

The hemisphere has a volume of $k\pi\,\text{cm}^3$

Find the value of k.

(Total for Question 23 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS