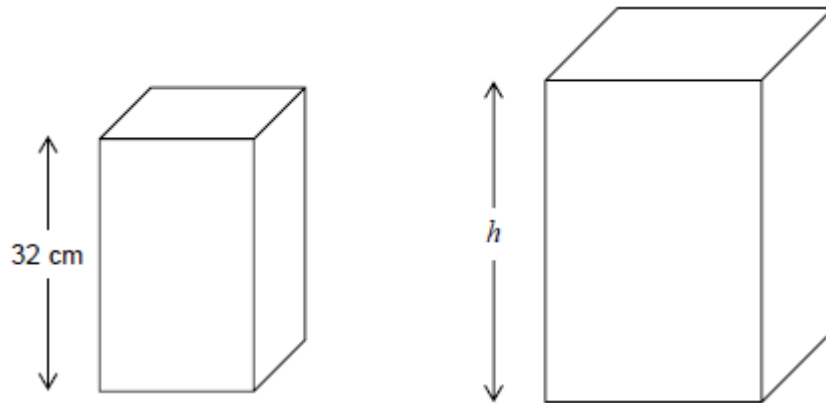


Q1.

Two boxes are made with card.

The boxes are similar cuboids.

The smaller box has height 32 cm



It takes 44% more card to make the larger box.

Work out the height, h , of the larger box.

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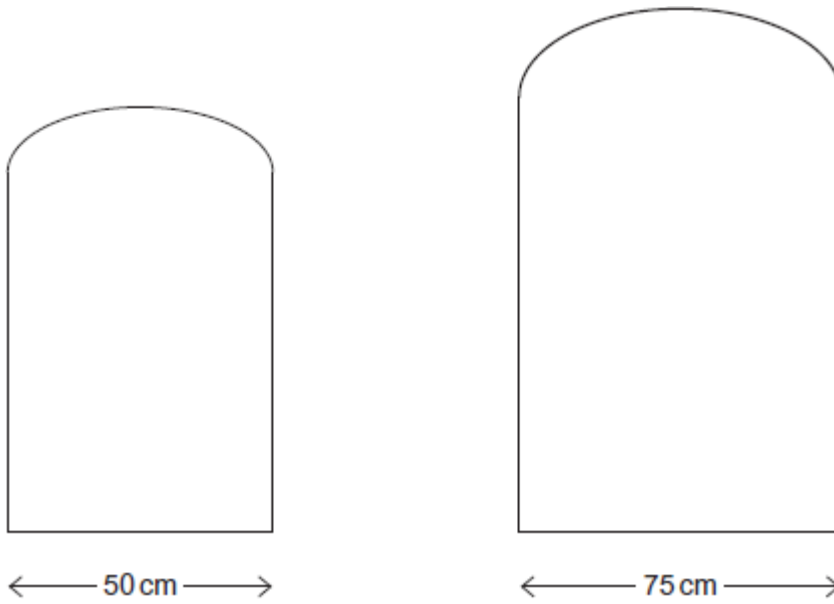
Answer cm

(Total 4 marks)

Q2.

The diagram shows two pieces of glass.

Not drawn accurately



The pieces are similar.
 The area of the small piece is 6000 cm^2

Glass costs £80 per square metre.

Work out the cost of the large piece.

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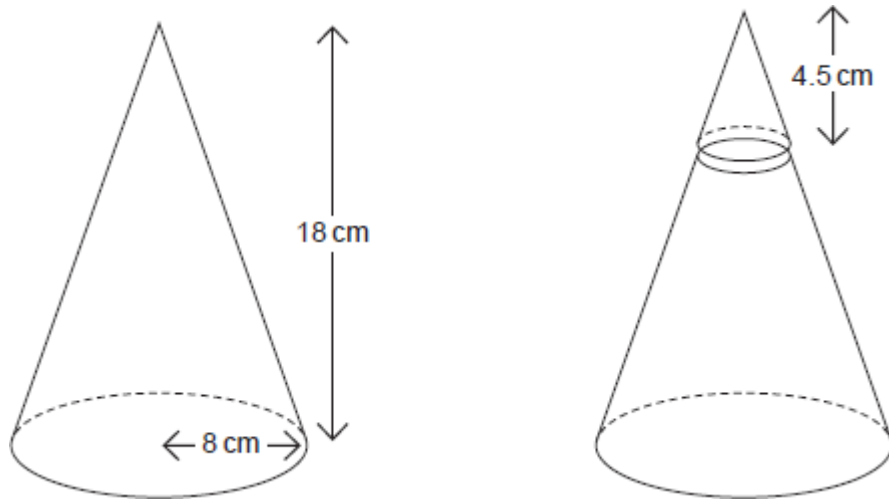
Answer £

(Total 5 marks)

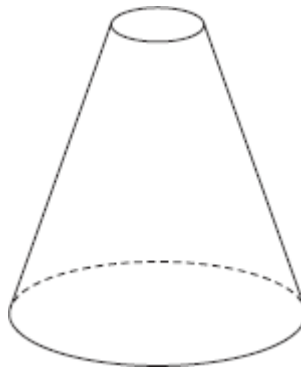
Q3.

A cone has a vertical height of 18 cm and a base radius of 8 cm

A cut is made parallel to the base so that a cone of height 4.5 cm is removed.



Calculate the volume of the remaining frustum.



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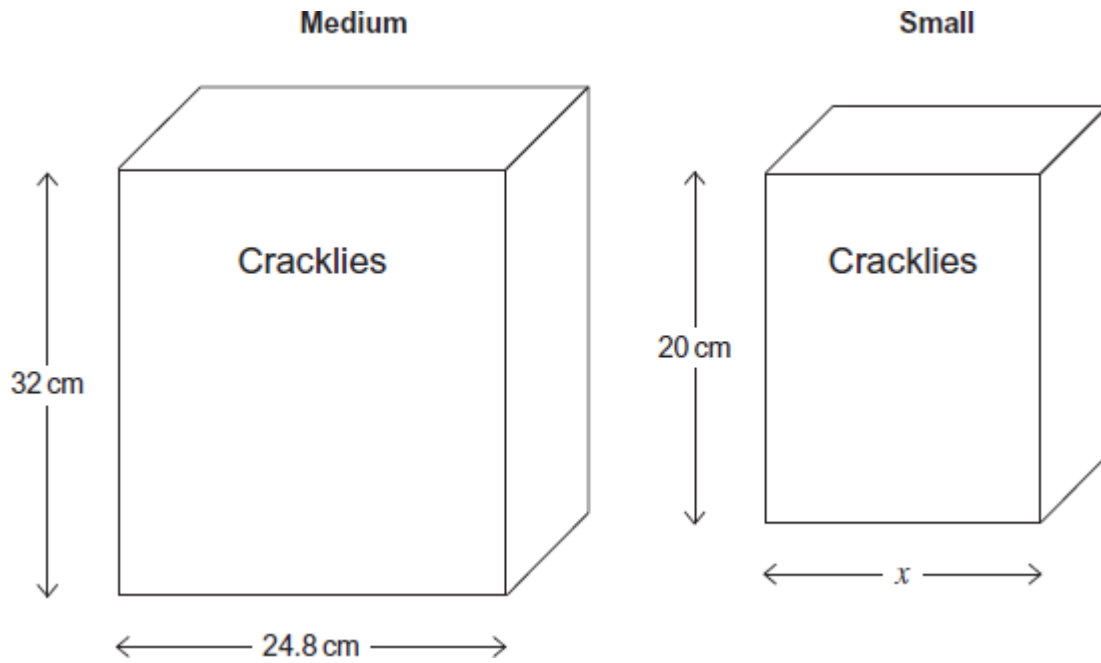
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Answer cm³

(Total 3 marks)

Q4.

Two boxes of cereal are shown.
The boxes are similar cuboids of heights 32 cm and 20 cm



(a) The width of the medium box is 24.8 cm

Work out the width, x , of the small box.

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Answer cm

(3)

(b) A large box of cereal is a similar cuboid to the medium box.
 The large box has height 37 cm

It is claimed that the large box has a volume 50% larger than the medium box.

Is this claim true?
 You **must** show your working.

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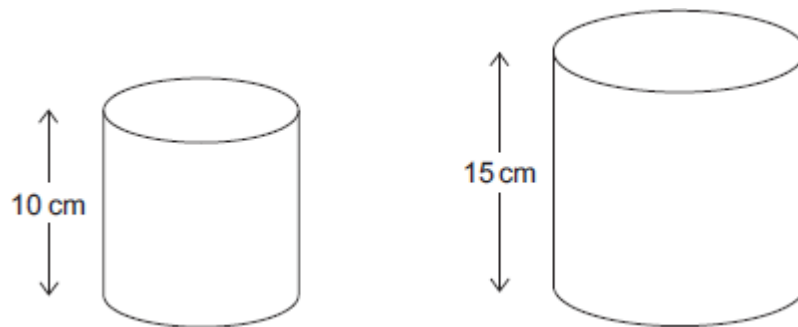
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(3)
(Total 6 marks)

Q5.

A solid cylinder has a volume of 454 cm^3 .
The cylinder has a height of 10 cm.

A similar cylinder has a height of 15 cm.



What is the volume of the larger cylinder?

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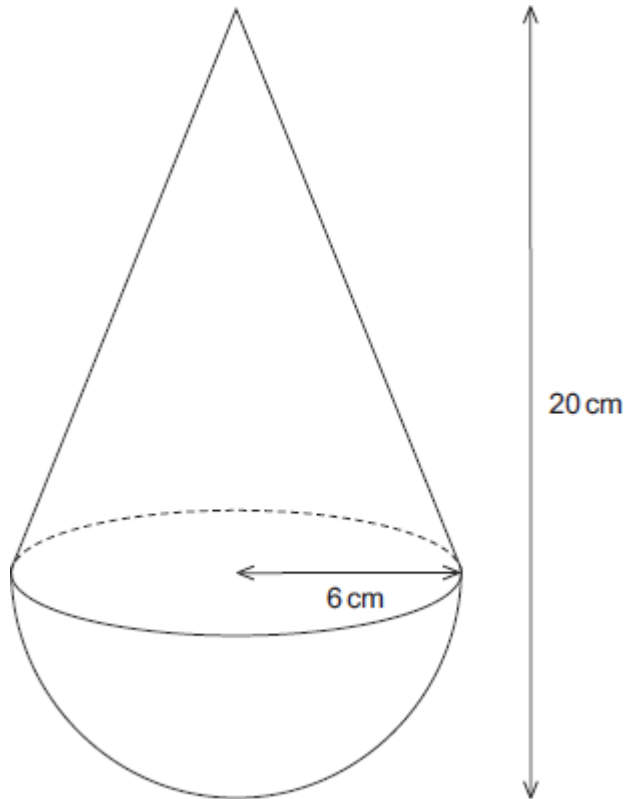
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Answer cm^3

(Total 3 marks)

Q6.

A small toy is made by joining a solid cone and a solid hemisphere together.
The cone and hemisphere each have radius 6 cm.



- (a) Show that the volume of the toy is $312\pi \text{ cm}^3$.

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(4)

- (b) A larger version of the toy is made that has
- dimensions twice the size of the small toy
 - mass 1.5 kilograms.

The toy is made from foam.

Work out the density of the foam.
Give your answer in grams per cubic centimetre.

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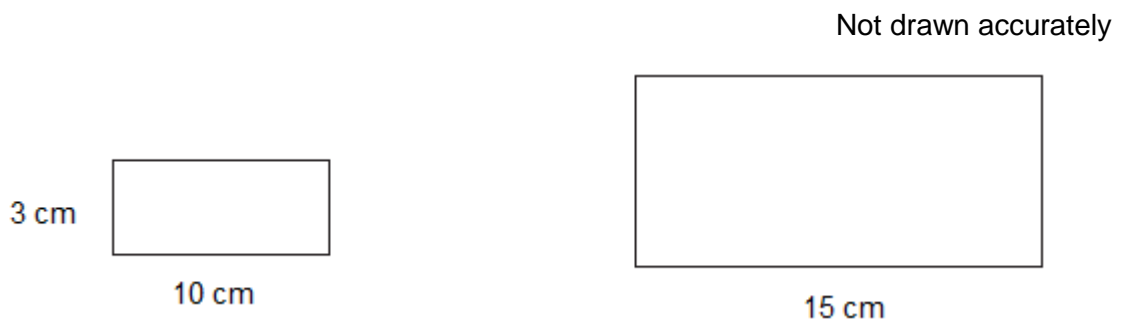
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Answer g per cm³

(4)
(Total 8 marks)

Q7. Here are two similar rectangles.



Work out the area of the larger rectangle.

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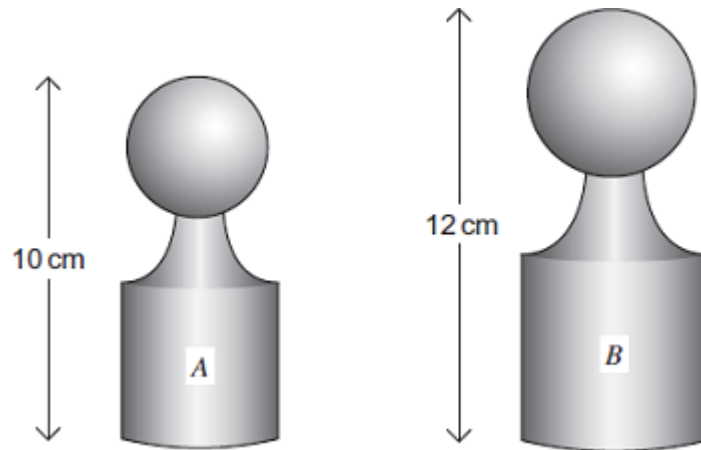
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Answer cm²

(Total 5 marks)

Q8. A and B are two similar solids.



The volume of A is 500 cm^3 .

Work out the volume of B .

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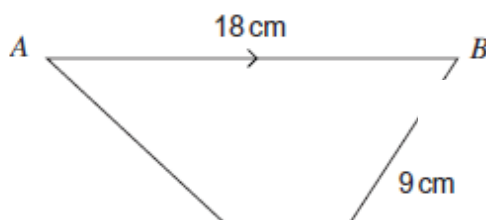
Answer cm^3

(Total 3 marks)

Q9. ACD and BCE are straight lines.

Triangle ABC is similar to triangle DEC .

AB is parallel to ED .



Not drawn
accurately

Work out the area of triangle *ABC*.

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Answer cm^2

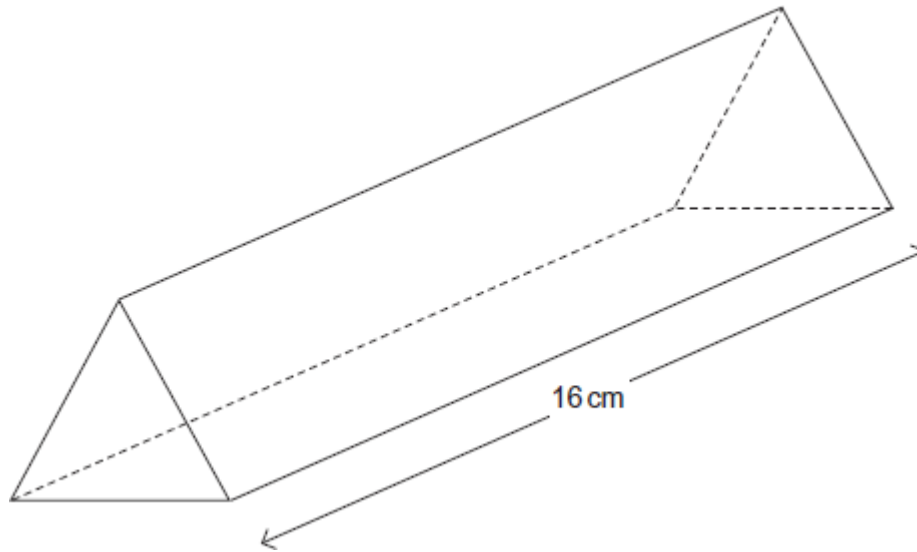
(Total 6 marks)

Q10.

A company makes boxes out of card.

Each box is a triangular prism.

The total surface area of the box is 196 cm^2 .



The company want to make an extra large box that is

- similar to the one shown above
- of length 80 cm
- uses no more than 5000 cm^2 of card.

Show that it is possible to make this box.

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(Total 3 marks)