1 The diagram shows a box **B** and a carton **C**
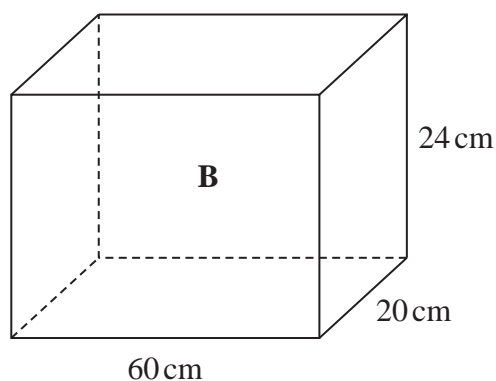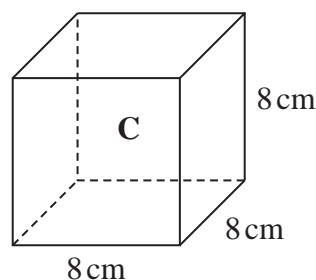
Diagram **NOT**
accurately drawn

24 cm

B

20 cm

60 cm

C

8 cm

8 cm

8 cm

The box **B** is in the shape of a cuboid.
Each carton **C** is in the shape of an 8 cm cube.

Martha is going to put as many of the cartons as possible into the box.
She has enough cartons to do this.

Martha will then fill the remaining space inside the box with packing material.

Work out the volume of the space inside the box that Martha will fill with
packing material.

height : $\frac{24}{8}$ = 3

length : $\frac{60}{8}$ = 7.5 ①
≈ 7

width : $\frac{20}{8}$ = 2.5
≈ 2

3 × 2 × 7 = 42 ①

volume = 60 × 20 × 24
= 28 800 cm³ ①

Volume = 8 × 8 × 8
= 512 cm³

28 800 − 42(512) ①

= 28 800 − 21 504

= 7296 ①

7296 .... cm³

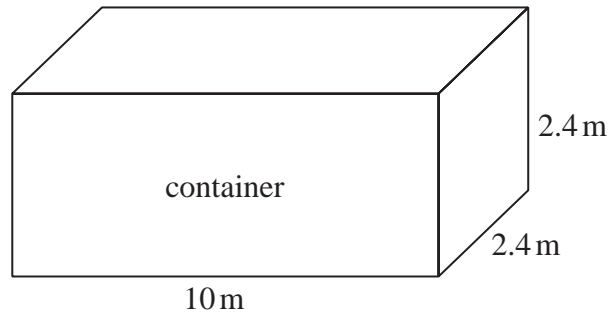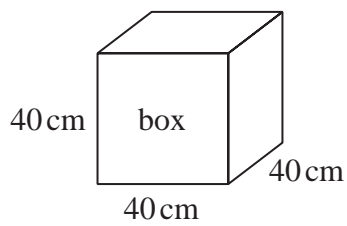**(Total for Question 1 is 5 marks)**

2

Diagram **NOT** accurately drawn

Tom puts boxes into a shipping container.

The container is a cuboid 10 metres by 2.4 metres by 2.4 metres.
Each box is a cube of side 40 centimetres.

Work out the greatest number of these boxes that Tom can put into the container.

$$\text{length} : \frac{10}{0.4} = 25 \quad ①$$

$$\text{width} : \frac{2.4}{0.4} = 6$$

$$\text{height} : \frac{2.4}{0.4} = 6$$

$$25 \times 6 \times 6 = 900 \quad ①$$
$$①$$

900
....

(Total for Question 2 is 3 marks)