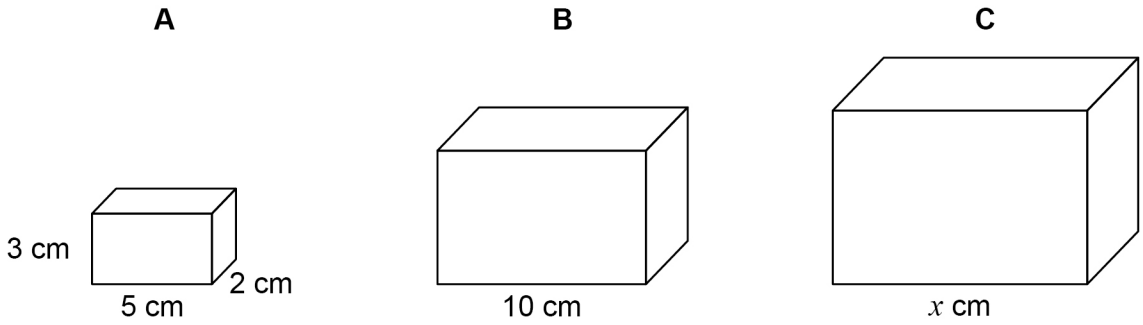
1 Here are three similar cuboids, A, B and C.

A has length 5 cm, width 2 cm and height 3 cm

B has length 10 cm

C has length x cm



1 (a) The total surface area of A is 62 cm^2

Tim wants to work out the total surface area of B.

Here is his working.

$10 \div 5 =$	2
$62 \times 2 =$	124
Total surface area of B =	124 cm^2

Make **one** criticism of Tim's method.

[1 mark]

The scale factor should be 4. Hence, 62 x 4 = 248 (1)

1 (b) Volume of A $\times \frac{125}{8}$ = Volume of C

Work out the value of x.

[3 marks]

$\sqrt[3]{\frac{125}{8}} = \frac{5}{2}$ (1)

length of A $\times \frac{5}{2}$ = length of C

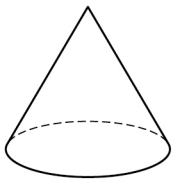
$5 \times \frac{5}{2} = x$ (1)

$12.5 = x$

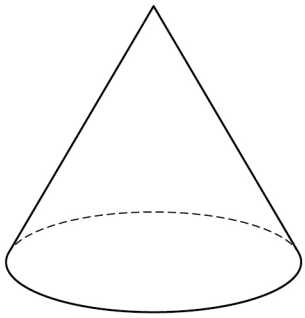
Answer 12.5 (1)

2 Here are two similar cones.

Cone A



Cone B



The surface area of cone A is 2 m^2

The surface area of cone B is 4.5 m^2

Work out the ratio radius of cone A : radius of cone B

Give your answer in the form 1 : n

[3 marks]

scale factor of $\frac{B}{A}$: $\frac{4.5}{2}$ = 2.25 (1)

scale factor in length : $\sqrt{2.25}$ (1)

= 1.5

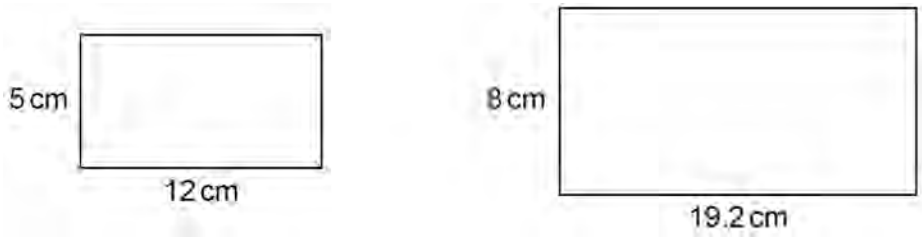
radius of A : radius of B = 1 : 1.5 (1)

Answer 1 : 1.5

3 Show that these two rectangles are similar.

[2 marks]

Not drawn accurately

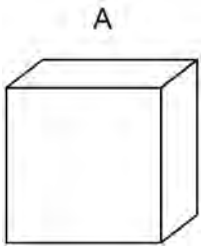


$\frac{8}{5} = 1.6$ (1)

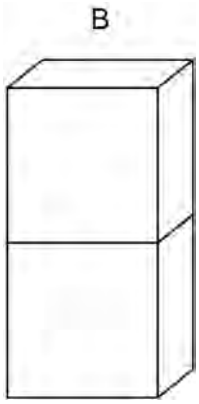
$\frac{19.2}{12} = 1.6$

$\frac{8}{5} = \frac{19.2}{12} = 1.6$ (1)

4 Here is cuboid A.



Cuboid B is made from **two** of cuboid A.



volume of A : volume of B = 1 : 2

Matthew says,

"surface area of A : surface area of B must be 1 : 2 because B is made of 2 of A."

Is Matthew correct?

Tick **one** box.

☐ Yes ☑ No ☐ Cannot tell

(1)

Give a reason for your answer.

[2 marks]

2 faces are hidden. (1)

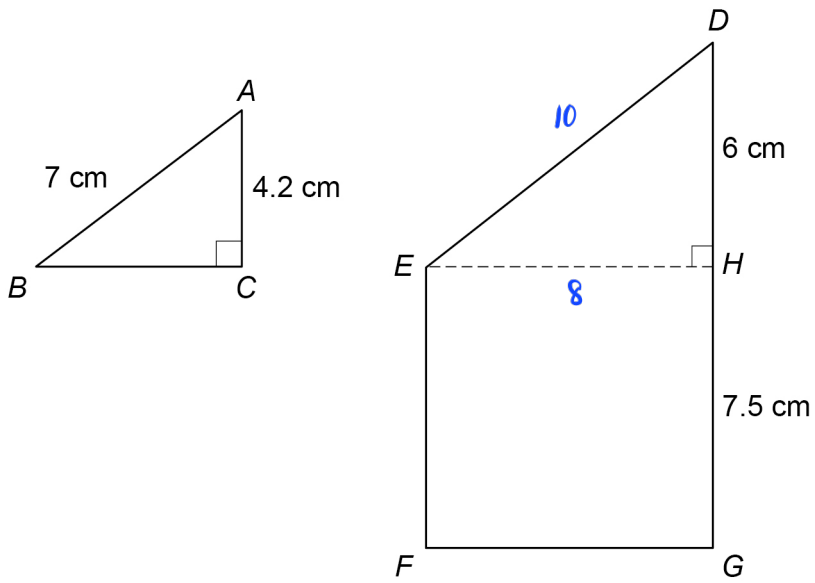
5 Trapezium *DEFG* is formed by joining

triangle *DEH*

to

rectangle *EFGH*.

Not drawn accurately



ABC is similar to *DEH*.

Work out the area of *DEFG*.

[5 marks]

$\frac{DE}{7} = \frac{6}{4.2}$

$DE = \frac{6}{4.2} \times 7 = 10$ (1)

$EH = \sqrt{10^2 - 6^2}$ (1)

$= \sqrt{64} = 8$ (1)

Area $DEH = \frac{1}{2} \times 6 \times 8 = 24$ (1)

Area $EFGH = 8 \times 7.5 = 60$

Area $DEFG = 24 + 60 = 84$

Answer 84 (1) cm^2