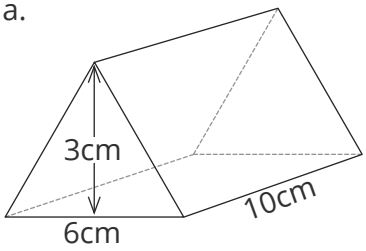
Your turn

1. Calculate the volume of each shape, giving your answers correct to the nearest whole number where necessary.

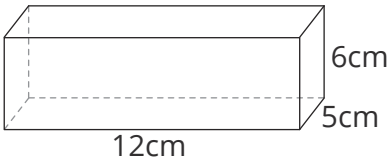
a.



$\frac{1}{2} \times 6 \times 3 = 9cm^2$

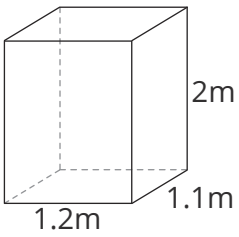
$9 \times 10 = 90cm^3$

b.



$5 \times 6 \times 12 = 360cm^3$

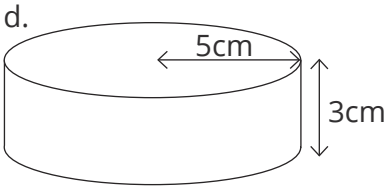
c.



$2 \times 1.1 \times 1.2 = 2.64$

$3m^3$

d.

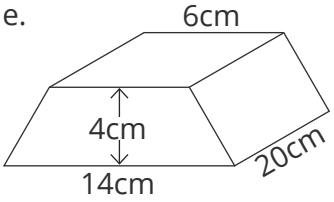


$\pi \times 5^2 = 78.53981634...cm^2$

$78.53981634... \times 3 = 235.619449...cm^2$

$236cm^3$

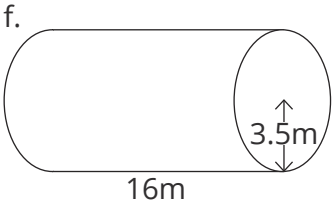
e.



$\frac{1}{2} \times (6 + 14) \times 4 = 40cm^2$

$40 \times 20 = 800cm^3$

f.

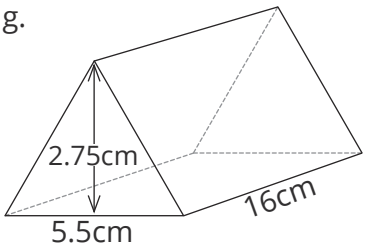


$\pi \times 3.5^2 = 38.48451001...m^2$

$38.48451001... \times 16 = 615.7521601...$

$616m^3$

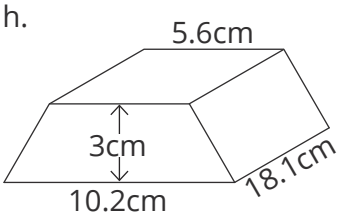
g.



$\frac{1}{2} \times 5.5 \times 2.75 = 7.5625cm^2$

$7.5625 \times 16 = 121cm^3$

h.

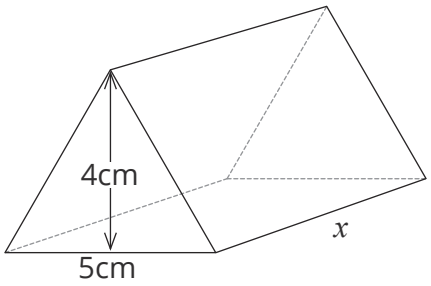


$\frac{1}{2} \times (5.6 + 10.2) \times 3 = 23.7cm^2$

$23.7 \times 18.1 = 428.97$

$429cm^3$

2. The volume of the triangular prism is 106cm^3. Calculate the measurement of the missing length marked x.

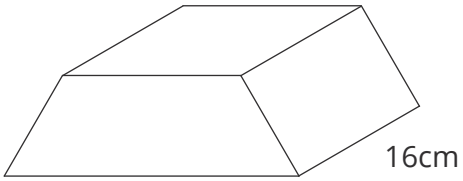


$\frac{1}{2}$ × 4 × 5 = 10cm^2

106 ÷ 10 = 10.6

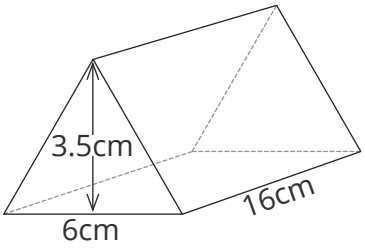
x = 10.6cm

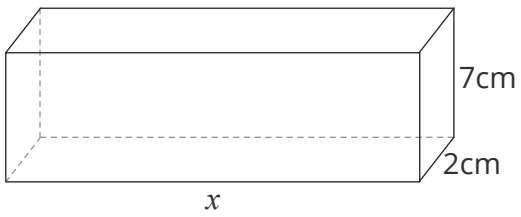
3. The volume of the prism shown below is 216cm^3. Calculate the cross-sectional area of the prism.



216 ÷ 16 = 13.5cm^2

4. The cuboid and the triangular prism have the same volume. Calculate the measurement of the missing length marked x.





$\frac{1}{2}$ × 6 × 3.5 = 10.5cm^2

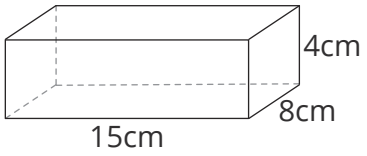
10.5 × 16 = 168cm^3

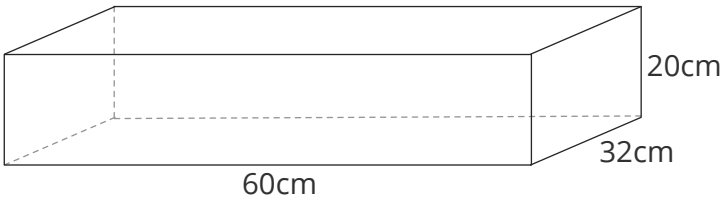
7 × 2 = 14cm^2

168 ÷ 14 = 12

x = 12cm

5. Boxes of chocolate are placed into a crate. Each box of chocolate is a cuboid and the crate is also a cuboid. Calculate the number of boxes of chocolate which will fit inside the crate.





60 ÷ 15 = 4cm

32 ÷ 8 = 4cm

20 ÷ 4 = 5cm

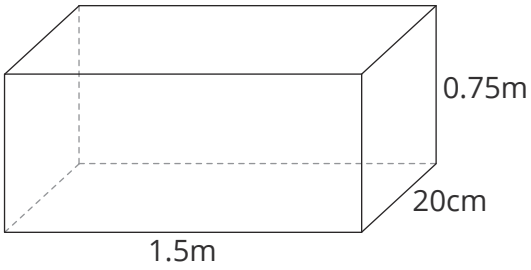
4 x 4 x 5 = 80

80 boxes of chocolate will fit inside of the crate.

Challenge

A fish tank is filled $\frac{3}{4}$ full of water. Joshua pours 1500ml more water into the fish tank. How many **litres** of water does the fish tank now contain?

Hint: 1ml = 1cm^3



1.5m = 150cm

0.75m = 75cm

150 × 20 × 75 = 225 000cm^3

225 000cm^3 = 225 000ml

$\frac{3}{4}$ × 225 000 = 168 750ml

168 750 + 1500 = 170 250ml

170 250ml = 170.25 litres