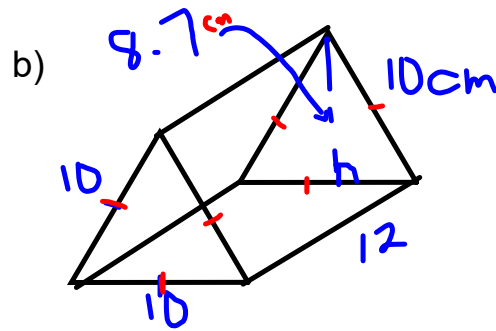
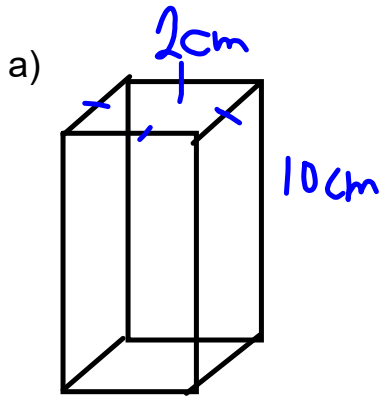


Warm up Gr .8  
Lesson 3 ELearning

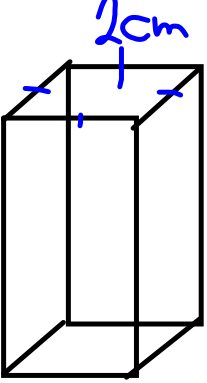


Find The Surface area of the following shapes



Warm Up Solutions

a)



Top & Bottom  
 $2\text{cm}$   
 $2\text{cm}$   
 (2)

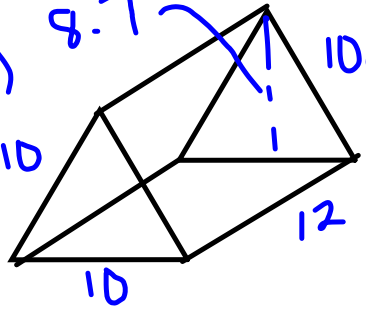
$A = l \times w$   
 $= 2 \times 2$   
 $= 4\text{cm}^2$

4 sides  
 $2$   
 (4)  
 of these since all sides equal  
 $10$

$A = l \times w$   
 $= 10 \times 2$   
 $= 20\text{cm}^2$

$SA = (2 \times 4) + (4 \times 20)$   
 $= 8 + 80$   
 $= 88\text{cm}^2$

b)



Bases  
 $10$   
 $8.7$   
 $10$

$A_{\Delta} = \frac{b \times h}{2}$   
 $= \frac{10 \times 8.7}{2}$   
 $= \frac{87}{2}$   
 $= 43.5\text{cm}^2$

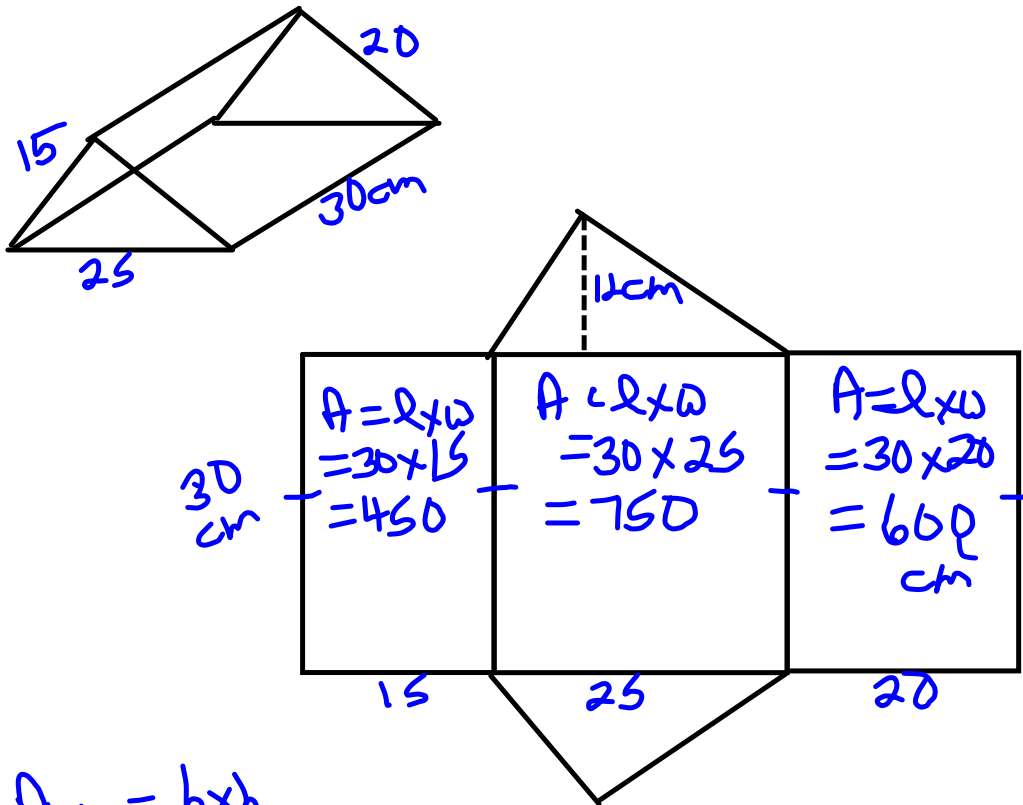
3 equal Faces  
 $10$   
 (3)

$A = l \times w$   
 $= 12 \times 10$   
 $= 120\text{cm}^2$

$SA = 2 \times 43.5 + 3 \times 120$   
 $= 87 + 360$   
 $= 447\text{cm}^2$

pg. 191 Solutions 6m 7ai, 9

6.

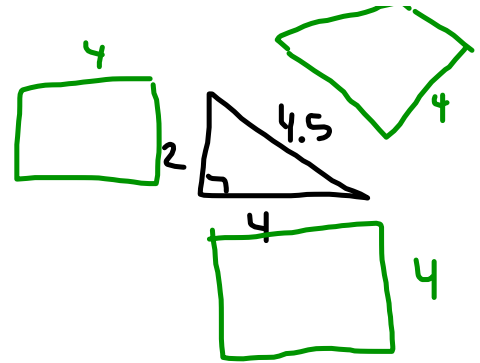
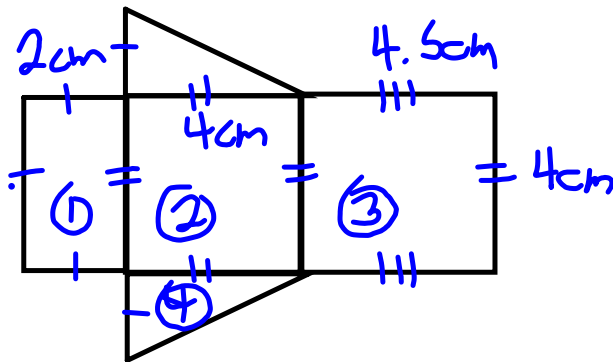


$$\begin{aligned}
 A_D &= \frac{b \times h}{2} \\
 &= \frac{25 \times 12}{2} = \frac{300}{2} \\
 &= 150 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 SA &= (2 \times 150) + 450 + 750 + 600 \\
 &= 300 + 450 + 750 + 600 \\
 &= 2100 \text{ cm}^2
 \end{aligned}$$

pg. 191 Solutions 6m 7ai, 9

7. a)



$$A_{\textcircled{1}} = l \times w \\ = 4 \times 2 \\ = 8 \text{ cm}^2$$

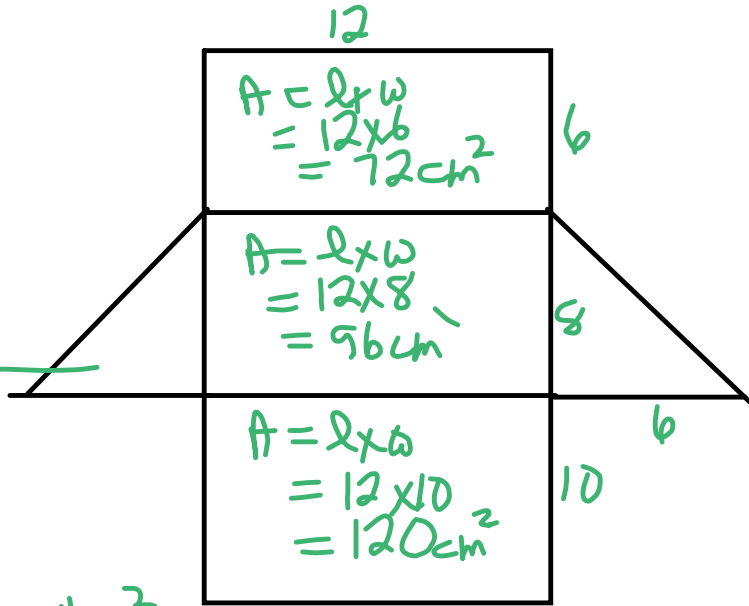
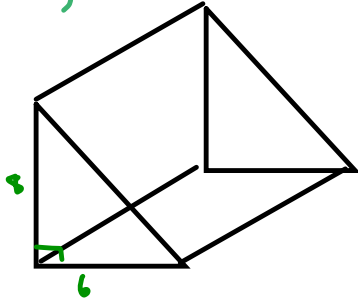
$$A_{\textcircled{2}} = l \times w \\ = 4 \times 4 \\ = 16 \text{ cm}^2$$

$$A_{\textcircled{3}} = l \times w \\ = 4.5 \times 4 \\ = 18 \text{ cm}^2$$

$$A_{\textcircled{4}} = \frac{b \times h}{2} \\ = \frac{4 \times 2}{2} \\ = \frac{8}{2} \\ = 4 \text{ cm}^2$$

$$SA = 2\Delta + \square + \square + \square \\ SA = (2 \times 4) + 8 + 16 + 18 \\ = 8 + 8 + 16 + 18 \\ = 50 \text{ cm}^2$$

9 a)



$$A = \frac{b \times h}{2}$$

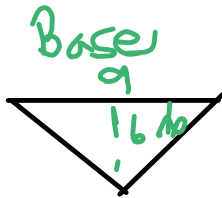
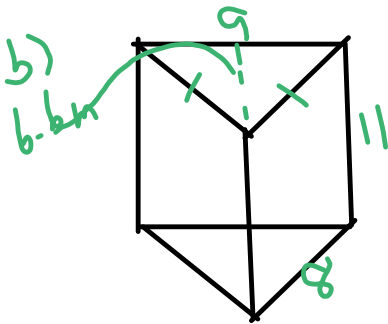
$$= \frac{6 \times 8}{2}$$

$$= \frac{48}{2} = 24 \text{ cm}^2$$

$$SA = (2 \times 24) + 72 + 96 + 120$$

$$= 48 + 72 + 96 + 120$$

$$= 236 \text{ cm}^2$$



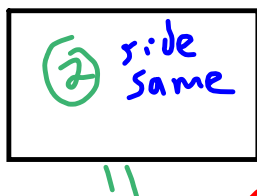
$$A = \frac{b \times h}{2}$$

$$= \frac{9 \times 6}{2}$$

$$= \frac{54}{2}$$

$$A_{\Delta} = 27 \text{ m}^2$$

sides

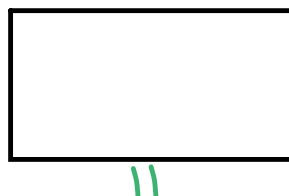


$$A = l \times w$$

$$= 11 \times 8$$

$$= 88 \text{ m}^2$$

Bottom



$$A = l \times w$$

$$= 11 \times 9$$

$$= 99 \text{ m}^2$$

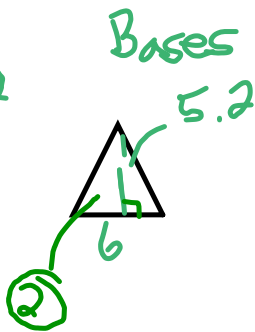
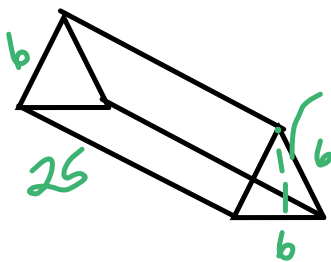
$$SA = (2 \times 29.7) + (2 \times 88) + 99$$

$$= 59.4 + 176 + 99$$

$$= 334.4 \text{ m}^2$$

pg. 191 Solutions 6m 7ai, 9

c)



$$\begin{aligned}
 A &= \frac{b \times h}{2} \\
 &= \frac{6 \times 5.2}{2} \\
 &= \frac{31.2}{2} \\
 &= 15.6 \text{ mm}^2
 \end{aligned}$$

Sides



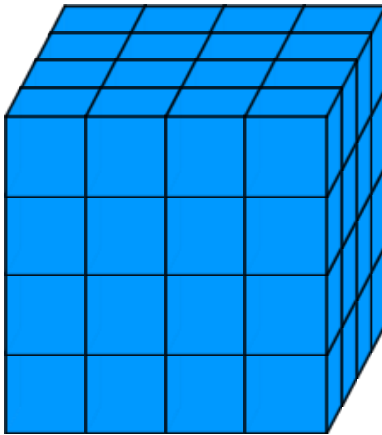
$$\begin{aligned}
 A &= l \times w \\
 &= 25 \times b \\
 &= 150 \text{ mm}^2
 \end{aligned}$$

All  $\square$  Same

$$\begin{aligned}
 SA &= (2 \times 15.6) + (3 \times 150) \\
 &= 31.2 + 450 \\
 &= 481.2 \text{ mm}^2
 \end{aligned}$$

## Volume

Volume is the amount of space an object occupies. It is measured in cubic units, such as,  $\text{mm}^3$ ,  $\text{cm}^3$ ,  $\text{m}^3$ , ...

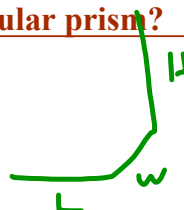


How do you find volume?

Did volume in Grade 6

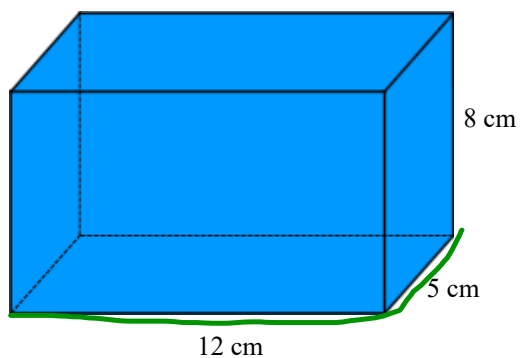
How do we find the volume of this rectangular prism?

Sometimes students say  $V = l \times w \times h$ ,  
 Instead of using this, we will use  $A_{\text{base}} \times H_{\text{prism}}$



★ Volume = Area of a base x height ★

First determine the base of the prism, then find its area, finally multiply this area by the height of the prism.



Volume:  $A_{\text{base}} \times H$   
 =  $(L \times w) \times H$   
 =  $12\text{cm} \times 5\text{cm} \times 8\text{cm}$   
 =  $480\text{ cm}^3$

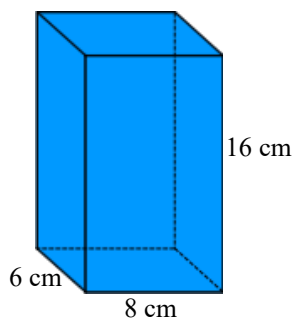
Area of Base =  
 =  
 =



Find the area and show all work.

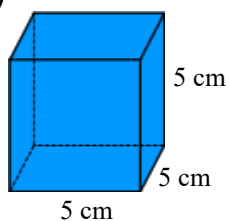
**Your Turn**

a)



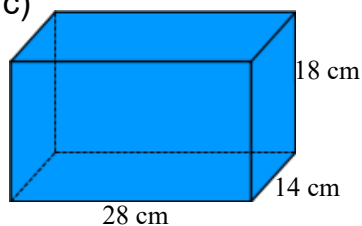
$$\begin{aligned}
 V_{\text{rec prism}} &= A_{\text{base}} \times H \\
 &= L \times w \times H \\
 &= 6 \text{ cm} \times 8 \text{ cm} \times 16 \text{ cm} \\
 &= 768 \text{ cm}^3
 \end{aligned}$$

b)



$$\begin{aligned}
 V &= A_{\text{base}} \times H \\
 &= L \times w \times H \\
 &= 5 \text{ cm} \times 5 \text{ cm} \times 5 \text{ cm} \\
 &= 125 \text{ cm}^3
 \end{aligned}$$

c)



# Class/Homework

pg. 197  
#5, #7, #9

**5.** A box of laundry detergent has dimensions 28 cm by 16 cm by 25 cm.

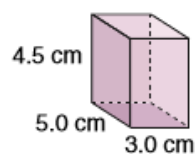
a) Sketch the box.

Label each dimension.

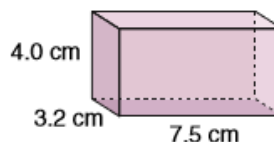
b) What volume of detergent will fill the box?

**7.** Find the volume of each rectangular prism.

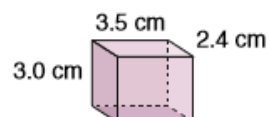
a)



b)



c)



**9.** Each dogsled team that enters the Iditarod has a portable doghouse for each sled dog. Two mushers are comparing the sizes of their doghouses. Each of Rick's doghouses is 94 cm by 63 cm by 71 cm. Each of Susan's doghouses is 109 cm by 71 cm by 81 cm.

a) What is the volume of each doghouse?

b) About how many times as great as the volume of Rick's doghouse is the volume of Susan's doghouse?