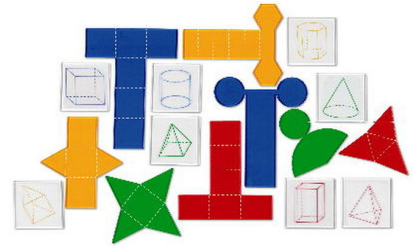




May 16  
Warm Up



### Assessment Review

1) Write the following as a fraction, decimal and a percent. "6 out of 8 wins"

$$= \frac{6}{8} \quad 0.75 \quad 75\%$$

$$= \frac{3}{4} \quad \rightarrow \text{To get bottom } \times 100 \text{ to get } 75$$

2) Jim gets paid \$12/hour on weekdays and \$16/hour on weekends. If he works 8 weekly hours and 3 weekend hours, how much will he get paid?

Week day = 12h  
= 12(8)  
= 96

Weekends = 16(h)  
= 16(3)  
= 48

Total = 96 + 48  
= 144

Jim gets paid \$144  
Review from Friday's class

1) Sketch the diagram and find the area for each shape.

a) a triangle with a base of 7m and a height of 6m

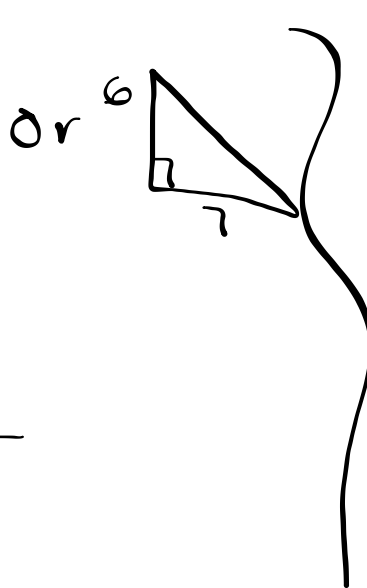
a)

$$A_{\Delta} = \frac{b \times h}{2}$$

$$= \frac{7m \times 6m}{2}$$

$$= \frac{42m^2}{2}$$

$$= 21m^2$$



b)

$$d = 18cm$$

$$r = 9cm$$

$$A_{\circ} = \pi r^2$$

$$= 3.14 (9cm)^2$$

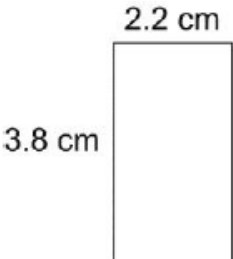
$$= 3.14 \times 81cm^2$$

$$= 254.34cm^2$$

## Area of Two-Dimensional Shapes


1) Find the area of each shape.

a)



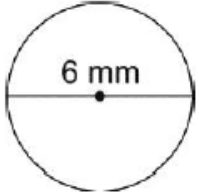
$$\begin{aligned}
 A &= l \times w \\
 &= 3.8 \text{ cm} \times 2.2 \text{ cm} \\
 &= 8.32 \text{ cm}^2
 \end{aligned}$$

b)



$$\begin{aligned}
 A &= \frac{b \times h}{2} \\
 &= \frac{12 \text{ m} \times 3 \text{ m}}{2} \\
 &= \frac{36 \text{ m}^2}{2} \\
 &= 18 \text{ m}^2
 \end{aligned}$$

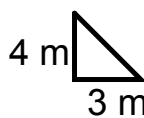
c)



$$\begin{aligned}
 A &= \pi r^2 \\
 &= 3.14 \times (3 \text{ mm})^2 \\
 &= 3.14 \times (9 \text{ mm}^2) \\
 &= 28.26 \text{ mm}^2
 \end{aligned}$$

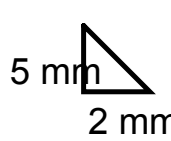
## 2) Find the area of the each shape and sketch the shape.

a. A triangle with height 3 m and base 4 m



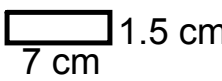
$$\begin{aligned}
 A &= \frac{b \times h}{2} \\
 &= \frac{4 \text{ m} \times 3 \text{ m}}{2} \\
 &= \frac{12 \text{ m}^2}{2} \\
 &= 6 \text{ m}^2
 \end{aligned}$$

b. A triangle with height 2 mm and base 5 mm



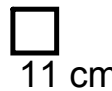
$$\begin{aligned}
 A &= \frac{b \times h}{2} \\
 &= \frac{2 \text{ mm} \times 5 \text{ mm}}{2} \\
 &= \frac{10 \text{ mm}^2}{2} \\
 &= 5 \text{ mm}^2
 \end{aligned}$$

c. A rectangle with length 7 cm and width 1.5 cm



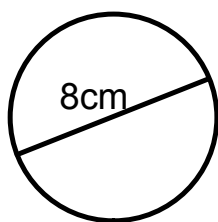
$$\begin{aligned}
 A &= l \times w \\
 &= 7 \text{ cm} \times 1.5 \text{ cm} \\
 &= 10.5 \text{ cm}^2
 \end{aligned}$$

d. A square with side length 11 cm



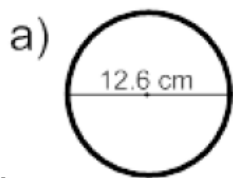
$$\begin{aligned}
 A &= l \times w \\
 &= 11 \text{ cm} \times 11 \text{ cm} \\
 &= 121 \text{ cm}^2
 \end{aligned}$$

e. A circle with diameter 8 cm

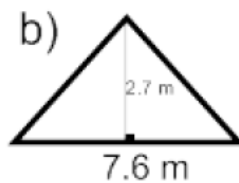


$$\begin{aligned}
 A &= \pi r^2 \\
 &= 3.14 \times (4 \text{ cm})^2 \\
 &= 3.14 \times (16 \text{ cm}^2) \\
 &= 50.24 \text{ cm}^2
 \end{aligned}$$

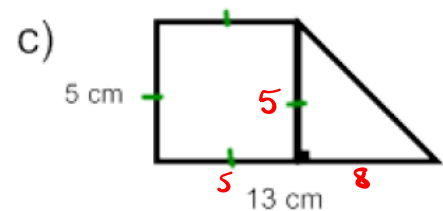
3) Find the surface Area



$$\begin{aligned}
 A &= \pi r^2 \\
 &= 3.14 \times (6.3 \text{ cm})^2 \\
 &= 3.14 \times (39.69 \text{ m}^2) \\
 &= 126.6266 \text{ cm}^2
 \end{aligned}$$



$$\begin{aligned}
 A &= \frac{b \times h}{2} \\
 &= \frac{7.6 \text{ m} \times 2.7 \text{ m}}{2} \\
 &= \frac{20.52 \text{ m}^2}{2} \\
 &= 10.26 \text{ m}^2
 \end{aligned}$$

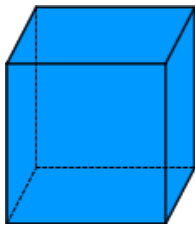


$$\begin{aligned}
 A &= l \times w & A &= \frac{b \times h}{2} \\
 &= 5 \text{ cm} \times 5 \text{ cm} & &= \frac{8 \text{ cm} \times 5 \text{ cm}}{2} \\
 &= 25 \text{ cm}^2 & &= \frac{40 \text{ cm}^2}{2} \\
 & & &= 20 \text{ cm}^2
 \end{aligned}$$

$$A_{\text{total}} = 20 + 25 = 45$$

## Surface Area of Right Rectangular Prisms

**Surface Area** is the sum of the area of all the faces of a 3D object.

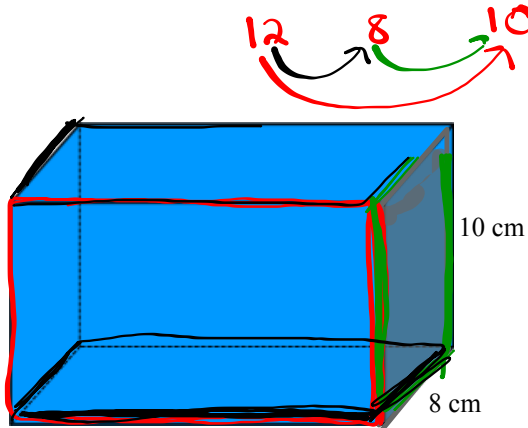
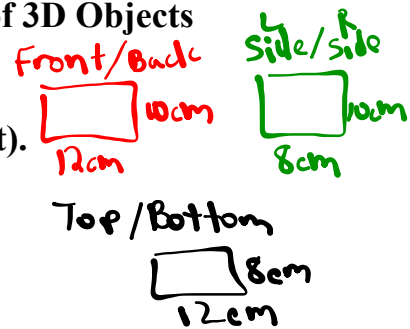


Square units (for example:  $\text{m}^2$ ,  $\text{cm}^2$ ) are used to measure area and surface area and **MUST** be included!

## How to Find Surface Area of 3D Objects

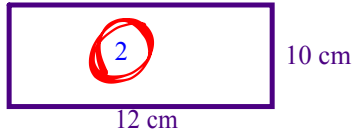
To find surface area:

1. Draw all of the faces (or you can draw a net).
2. Find the area of each face.
3. Then add up the areas of all of the faces.



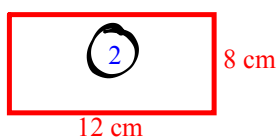
Faces

Front and Back - Rectangles



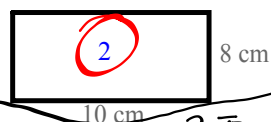
$$\begin{aligned}
 A &= l \times w \\
 &= 12 \times 10 \\
 &= 120 \text{ cm}^2
 \end{aligned}$$

Top and Bottom - Rectangles

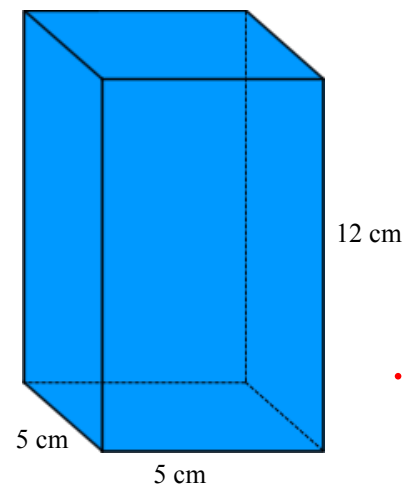


$$\begin{aligned}
 A &= l \times w \\
 &= 12 \times 8 \\
 &= 96 \text{ cm}^2
 \end{aligned}$$

2 sides - Rectangles



$$\begin{aligned}
 A &= l \times w \\
 &= 10 \times 8 \\
 &= 80 \text{ cm}^2
 \end{aligned}$$



$$SA_{\text{RectPrism}} = 2\text{Top} + 2\text{sides} + 2\text{front}$$

$$\begin{aligned}
 \text{Surface Area} &= 2 \times 120 + 2 \times 96 + 2 \times 80 \\
 &= 240 + 192 + 160 \\
 &= 592 \text{ cm}^2
 \end{aligned}$$

What is the surface area of this rectangular prism?

5 cm, 5 cm, 12 cm

Front/Back:  $12 \text{ cm} \times 5 \text{ cm} = 60 \text{ cm}^2$

Bottom/Top:  $5 \text{ cm} \times 5 \text{ cm} = 25 \text{ cm}^2$

Side/Side:  $12 \text{ cm} \times 5 \text{ cm} = 60 \text{ cm}^2$

Total SA =  $2 \text{ Front} + 2 \text{ Bottoms} + 2 \text{ Sides}$   
 $= 2(60 \text{ cm}^2) + 2(25 \text{ cm}^2) + 2(60 \text{ cm}^2)$   
 $= 120 \text{ cm}^2 + 50 \text{ cm}^2 + 120 \text{ cm}^2$   
 $= 290 \text{ cm}^2$

Top and Bottom:  $5 \text{ cm} \times 5 \text{ cm} = 25 \text{ cm}^2$

Front and Back:  $12 \text{ cm} \times 5 \text{ cm} = 60 \text{ cm}^2$

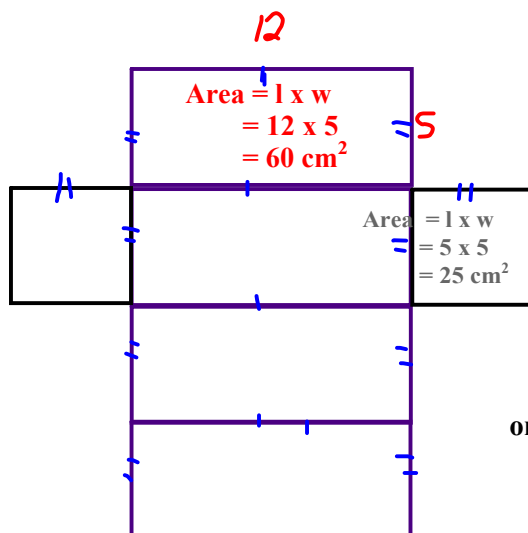
Sides:  $12 \text{ cm} \times 5 \text{ cm} = 60 \text{ cm}^2$

What do you notice about the front and back and 2 sides?

Then you could have said you have 4 rectangles that are the same and multiply by 4.

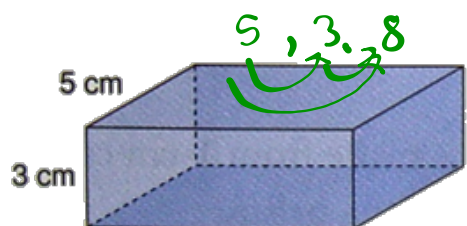
$$\begin{aligned} \text{Surface Area} &= 2 \times 25 + 2 \times 60 + 2 \times 60 \\ &= 50 + 120 + 120 \\ &= 290 \text{ cm}^2 \end{aligned}$$

$$\begin{aligned} \text{or SA} &= 2 \times 25 + 4 \times 60 \\ &= 50 + 240 \\ &= 290 \text{ cm}^2 \end{aligned}$$



$$\begin{aligned} \text{or SA} &= 2 \times 25 + 4 \times 60 \\ &= 50 + 240 \\ &= 290 \text{ cm}^2 \end{aligned}$$

What is the surface area of this prism?



Top/Bottom	Front/Back	Side/Side
$A = b \times h$ $= 8 \text{ cm} \times 3 \text{ cm}$ $= 24 \text{ cm}^2$	$A = b \times h$ $= 8 \times 5$ $= 40 \text{ cm}^2$	$A = b \times h$ $= 3 \times 5$ $= 15 \text{ cm}^2$

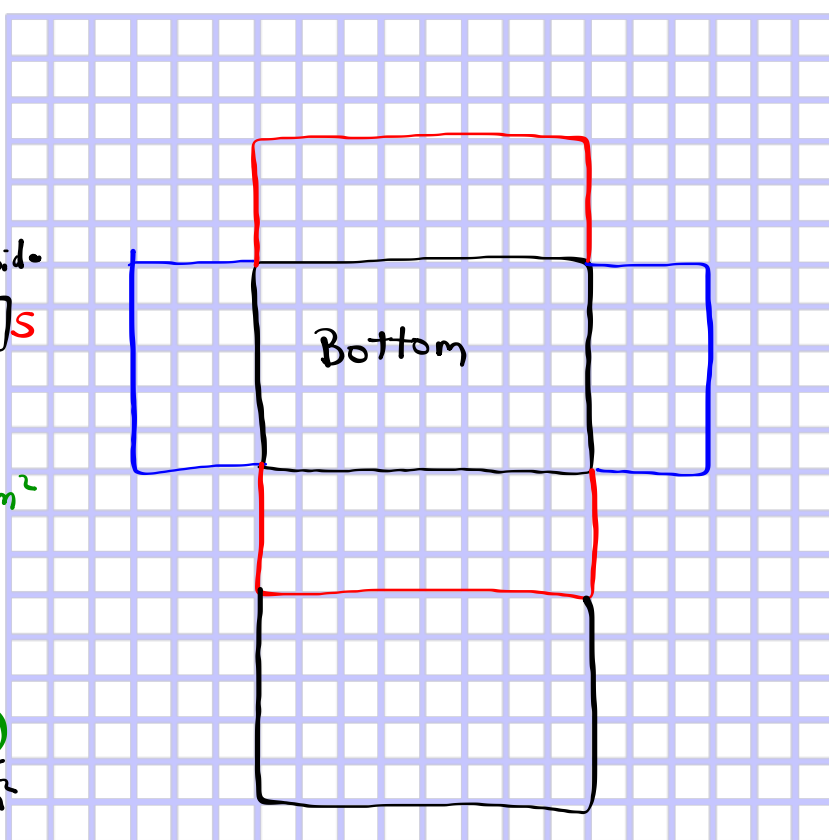
Total SA =

$$= 2 \text{ Top} + 2 \text{ Front} + 2 \text{ Sides}$$

$$= 2(24) + 2(40) + 2(15)$$

$$= 48 \text{ cm}^2 + 80 \text{ cm}^2 + 30 \text{ cm}^2$$

$$= 158 \text{ cm}^2$$





Practice Questions

Page 186 ~~#4~~, #5, #6<sup>ac</sup>

**Extra help after school!!**

Attachments

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Review of Surface area of 2D Shape Grade 8 Unit 4 PDF.pdf