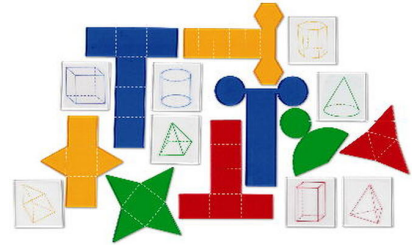


Warm Up Grade 8
May 9, 2016



Assessment Review

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

$$\frac{6}{8} = \frac{3}{4} \quad 0.75 \quad 75\%$$

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?

$$\begin{aligned} \text{Pay} &= 12w + 16E \\ &= 12(8) + 16(3) \\ &= 96 + 48 \\ &= 144 \end{aligned}$$

w = Week days
E = Weekends
Pay

Week day Pay
 12×8
96

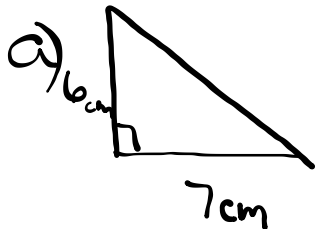
week end
 16×3
48

Total = $96 + 48$
 $= 144$

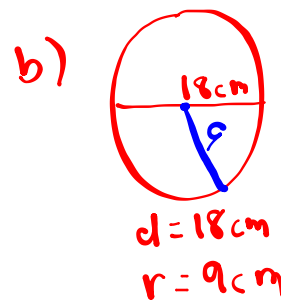
Review from last class

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

- a) a triangle with a base of 7m and a height of 6m
- b) a circle with a diameter of 18 cm

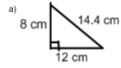


$$\begin{aligned} A_{\Delta} &= \frac{b \times h}{2} \\ &= \frac{7\text{cm} \times 6\text{cm}}{2} \\ &= \frac{42\text{cm}^2}{2} \\ &= 21\text{cm}^2 \end{aligned}$$



$$\begin{aligned} A_{\circ} &= \pi r^2 \\ &= 3.14 (9\text{cm})^2 \\ &= 3.14 (81\text{cm}^2) \\ &= 254.34\text{cm}^2 \end{aligned}$$

1) Find the area of each



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

$$= \frac{12 \text{ cm} \times 8 \text{ cm}}{2}$$

$$= \frac{96 \text{ cm}^2}{2}$$

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



$$A = b \times h$$

$$= 4 \text{ cm} \times 18 \text{ cm}$$

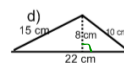
$$= 72 \text{ cm}^2$$



$$A = b \times h$$

$$= 11 \text{ cm} \times 11 \text{ cm}$$

$$= 121 \text{ cm}^2$$



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

$$= \frac{22 \text{ cm} \times 8 \text{ cm}}{2}$$

$$= \frac{176 \text{ cm}^2}{2}$$

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

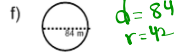


$$A = \pi r^2$$

$$= 3.14 \times (12 \text{ mm})^2$$

$$= 3.14 \times 144 \text{ mm}^2$$

$$= 452.16 \text{ mm}^2$$



$$A = \pi r^2$$

$$= 3.14 \times (42 \text{ mm})^2$$

$$= 3.14 \times 1764 \text{ mm}^2$$

$$= 5538.96 \text{ mm}^2$$

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

- a. A triangle with height 15 m and base 6 m
- b. A triangle with height 7 mm and base 6 mm
- c. A rectangle with length 10 cm and width 2.5 cm
- d. A square with side length 9 cm
- e. A circle with diameter 12 cm

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

$$= \frac{15 \text{ m} \times 6 \text{ m}}{2}$$

$$= \frac{90 \text{ m}^2}{2}$$

$$= 45 \text{ m}^2$$

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

$$= \frac{6 \text{ mm} \times 7 \text{ mm}}{2}$$

$$= \frac{42 \text{ mm}^2}{2}$$

$$= 21 \text{ mm}^2$$

2c) $A = b \times h$

$$= 10 \text{ cm} \times 2.5 \text{ cm}$$

$$= 25 \text{ cm}^2$$

2d) $A = b \times h$

$$= 9 \text{ cm} \times 9 \text{ cm}$$

$$= 81 \text{ cm}^2$$

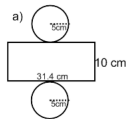
2e) $A = \pi r^2$

$$= 3.14 \times (6 \text{ cm})^2$$

$$= 3.14 \times 36 \text{ cm}^2$$

$$= 113.04 \text{ cm}^2$$

3) Find the total area



circle $A = \pi r^2$

$$= 3.14 \times (5 \text{ cm})^2$$

$$= 3.14 \times 25 \text{ cm}^2$$

$$= 78.5 \text{ cm}^2$$

Rectangle $A = b \times h$

$$= 31.4 \text{ cm} \times 10 \text{ cm}$$

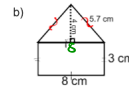
$$= 314 \text{ cm}^2$$

Total Area = 2 x (Area Circle) + Rectangle

$$= 2 (78.5 \text{ cm}^2) + 314 \text{ cm}^2$$

$$= 157 \text{ cm}^2 + 314 \text{ cm}^2$$

$$= 471 \text{ cm}^2$$



Rectangle $A = b \times h$

$$= 8 \text{ cm} \times 3 \text{ cm}$$

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

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

$$= \frac{8 \text{ cm} \times 4 \text{ cm}}{2}$$

$$= \frac{32 \text{ cm}^2}{2}$$

$$= 16 \text{ cm}^2$$

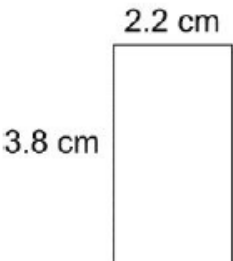
Total Area = Triangle + Rectangle

$$= 16 \text{ cm}^2 + 24 \text{ cm}^2$$

$$= 40 \text{ cm}^2$$

Area of Two-Dimensional Shapes


1) Find the area of each shape.

a)  b)

$$A = l \times w$$

$$= 3.8 \text{ cm} \times 2.2 \text{ cm}$$

$$= 8.32 \text{ cm}^2$$

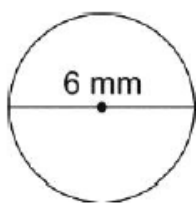
b) 

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

$$= \frac{12 \text{ m} \times 3 \text{ m}}{2}$$

$$= \frac{36 \text{ m}^2}{2}$$

$$= 18 \text{ m}^2$$

c) 

$$A = \pi r^2$$

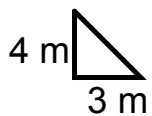
$$= 3.14 \times (3 \text{ mm})^2$$

$$= 3.14 \times (9 \text{ mm}^2)$$

$$= 28.26 \text{ mm}^2$$

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

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



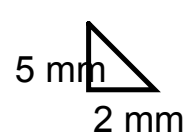
$$A = \frac{b \times h}{2}$$

$$= \frac{4 \text{ m} \times 3 \text{ m}}{2}$$

$$= \frac{12 \text{ m}^2}{2}$$

$$= 6 \text{ m}^2$$

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



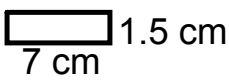
$$A = \frac{b \times h}{2}$$

$$= \frac{2 \text{ mm} \times 5 \text{ mm}}{2}$$

$$= \frac{10 \text{ mm}^2}{2}$$

$$= 5 \text{ mm}^2$$

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

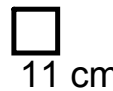


$$A = l \times w$$

$$= 7 \text{ cm} \times 1.5 \text{ cm}$$

$$= 10.5 \text{ cm}^2$$

d. A square with side length 11 cm

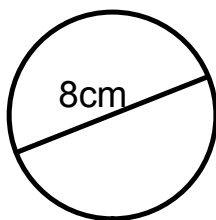


$$A = l \times w$$

$$= 11 \text{ cm} \times 11 \text{ cm}$$

$$= 121 \text{ cm}^2$$

e. A circle with diameter 8 cm



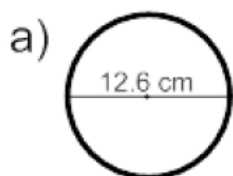
$$A = \pi r^2$$

$$= 3.14 \times (8 \text{ cm})^2$$

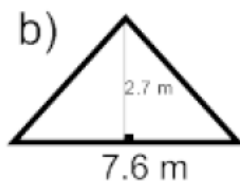
$$= 3.14 \times (64 \text{ cm}^2)$$

$$= 200.96 \text{ cm}^2$$

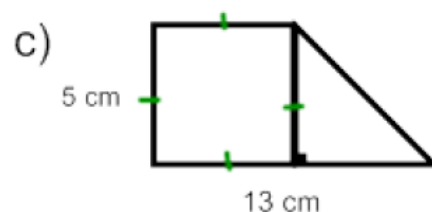
3) Find the surface Area



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



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

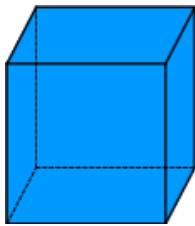


$$\begin{aligned}
 A &= l \times w & A &= \frac{b \times h}{2} \\
 &= 5 \text{ cm} \times 5 \text{ cm} & &= \frac{8 \text{ cm} \times 5 \text{ cm}}{2} \\
 &= 25 \text{ cm}^2 & &= \frac{40 \text{ cm}^2}{2} \\
 & & &= 20 \text{ cm}^2
 \end{aligned}$$

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

Surface Area of Right Rectangular Prisms

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

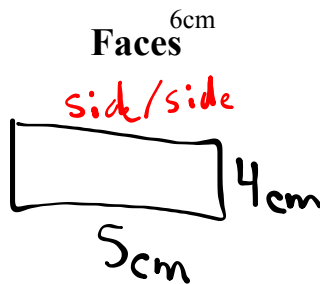
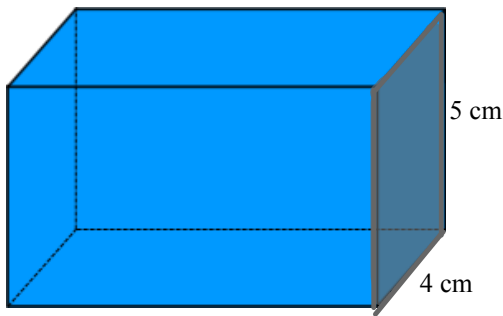
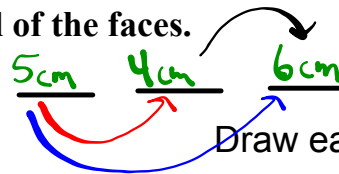


Square units (for example: m^2 , cm^2) are used to measure area and surface area and **MUST** be included!

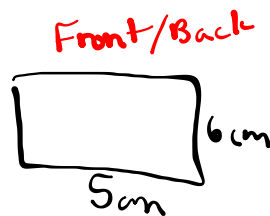
How to Find Surface Area of 3D Objects

To find surface area:

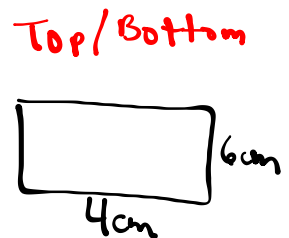
1. Draw all of the faces (or you can draw a net).
2. Find the area of each face.
3. Then add up the areas of all of the faces.



$$\begin{aligned} A_{\text{rec}} &= l \times w \\ &= 5\text{cm} \times 4\text{cm} \\ &= 20\text{cm}^2 \end{aligned}$$



$$\begin{aligned} A_{\text{rec}} &= l \times w \\ &= 5\text{cm} \times 6\text{cm} \\ &= 30\text{cm}^2 \end{aligned}$$

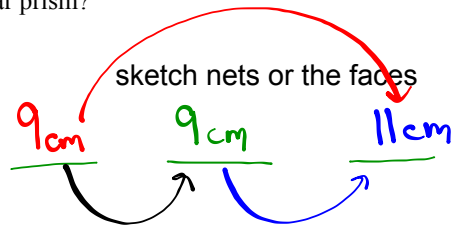
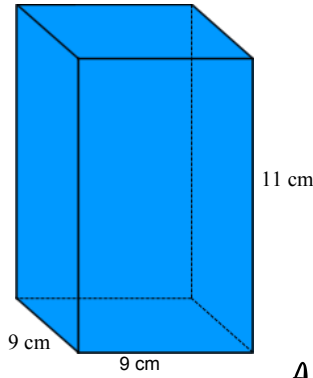


$$\begin{aligned} A_{\text{rec}} &= l \times w \\ &= 4\text{cm} \times 6\text{cm} \\ &= 24\text{cm}^2 \end{aligned}$$

$$\begin{aligned} A_{\text{Total}} &= 2 (\text{Side} + \text{Top} + \text{Front}) \\ &= 2 (20\text{cm}^2 + 30\text{cm}^2 + 24\text{cm}^2) \\ &= 2 (74\text{cm}^2) \\ &= 148\text{cm}^2 \text{ OR} \end{aligned}$$

$$A_{\text{Total}} = 2 \text{ front} + 2 \text{ side} + 2 \text{ tops}$$

What is the surface area of this rectangular prism?

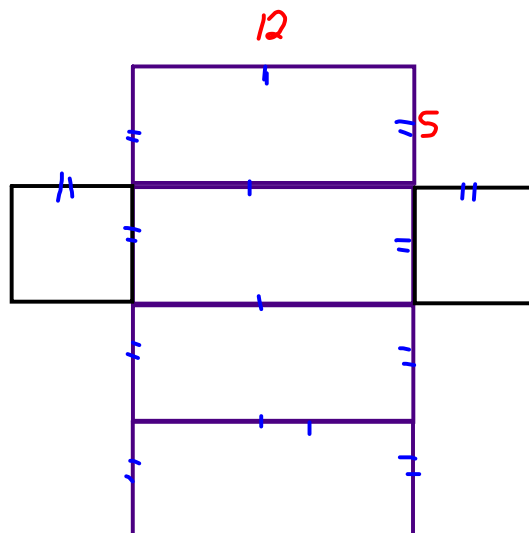


$$\begin{aligned}
 & \square \begin{matrix} 9\text{ cm} \\ 9\text{ cm} \end{matrix} \\
 A &= l \times w \\
 &= 9\text{ cm} \times 9\text{ cm} \\
 &= 81\text{ cm}^2
 \end{aligned}$$

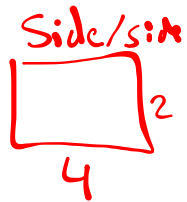
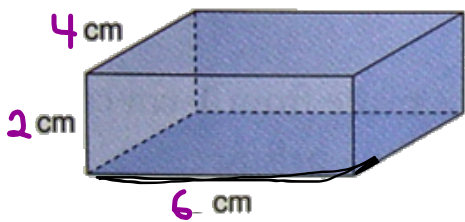
$$\begin{aligned}
 & \text{rectangle} \begin{matrix} 11\text{ cm} \\ 9\text{ cm} \end{matrix} \\
 A &= l \times w \\
 &= 9\text{ cm} \times 11\text{ cm} \\
 &= 99\text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 & \text{rectangle} \begin{matrix} 11\text{ cm} \\ 9\text{ cm} \end{matrix} \\
 A &= l \times w \\
 &= 9\text{ cm} \times 11\text{ cm} \\
 &= 99\text{ cm}^2
 \end{aligned}$$

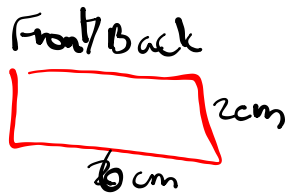
$$\begin{aligned}
 A_{\text{total}} &= 2(\text{Rect}_{\text{side}} + \text{Rect}_{\text{top}} + \text{Rect}_{\text{front}}) \\
 &= 2(81\text{ cm}^2 + 99\text{ cm}^2 + 99\text{ cm}^2) \\
 &= 2(279\text{ cm}^2) \\
 &= 558\text{ cm}^2
 \end{aligned}$$



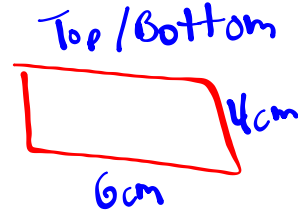
What is the surface area of this prism?



$$\begin{aligned}
 A &= l \times w \\
 &= 4 \text{ cm} \times 2 \text{ cm} \\
 &= 8 \text{ cm}^2
 \end{aligned}$$



$$\begin{aligned}
 A &= l \times w \\
 &= 6 \text{ cm} \times 2 \text{ cm} \\
 &= 12 \text{ cm}^2
 \end{aligned}$$



$$\begin{aligned}
 A &= l \times w \\
 &= 6 \text{ cm} \times 4 \text{ cm} \\
 &= 24 \text{ cm}^2
 \end{aligned}$$

$$\begin{aligned}
 A_{\text{total}} &= 2(\text{Side} + \text{Front} + \text{Top}) \\
 &= 2(8 \text{ cm}^2 + 12 \text{ cm}^2 + 24 \text{ cm}^2) \\
 &= 2(44 \text{ cm}^2) \\
 &= 88 \text{ cm}^2
 \end{aligned}$$

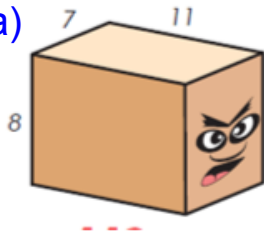
Practice Questions

Page 186 #4, #5, #6 Did already???

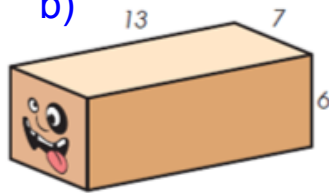
More

1) Sketch each face and find the area (Show all work)

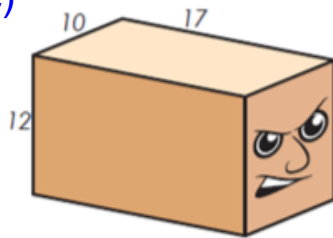
a)



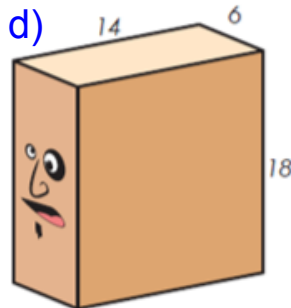
b)



c)



d)



2) Find the surface area of a right rectangular prism with these dimensions.

a) 12 m by 10 m by 13 m

b) 5 cm by 7 cm by 9 cm

3) Jim is painting the 4 walls of a classroom. The room measures the following 8 m wide by 12 m long and 3 m high. The walls need 2 coats of paint. A can of paint will cover 50 m^2 . How many cans of paint should he buy? (Must Show All work)

Attachments

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