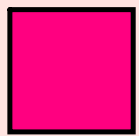


Chapter 4 - Section 4.1 & 4.2

Definitions and Formulas

Area:



w

$$A = \text{length} \times \text{width}$$

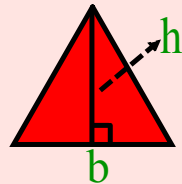
l



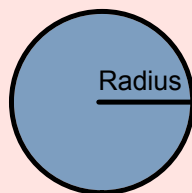
w

$$A = \text{length} \times \text{width}$$

l



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



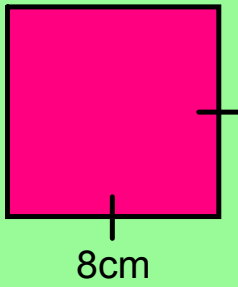
$$A = \pi r^2$$

$$\pi = 3.14$$

$$C = \pi d$$

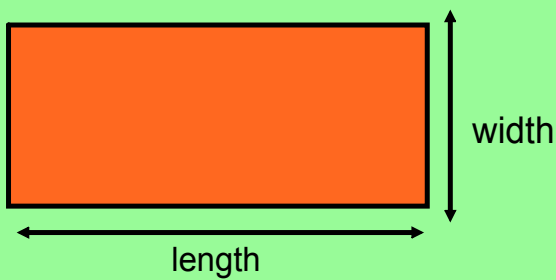
or

$$C = 2\pi r$$

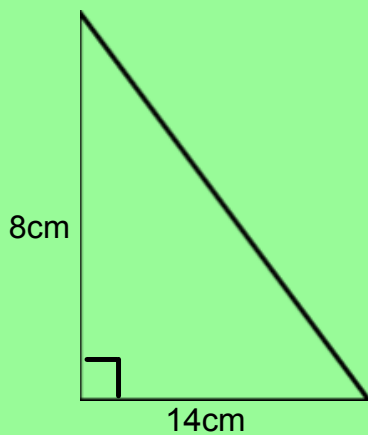


The sides of the square are 8cm in length. Find the area.

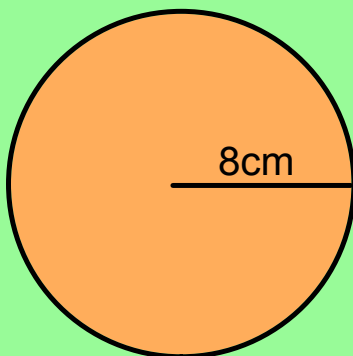
$$\begin{aligned} A &= l \times w \\ &= 8 \times 8 \\ &= 64 \text{cm}^2 \end{aligned}$$



The length of the rectangle is 10cm and the width is 5 cm. Find the area.



The base of the triangle is 14cm and the height is 8cm. Find the area.



Find the area of the circle.

Solid - 3D object with a filled interior. Ex: block of butter, pillar, toblerone bar

Shell - 3D object with an empty interior. Ex: cereal box, Pepsi can, tent

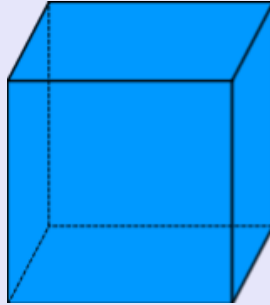
Net - Flat diagram that can be folded to create a 3D Solid - shows all faces. Ex: box before it is put together.

Face - The flat side of a shape

Edge - Any side of a face

Vertex - Points where the edges meet

CUBE

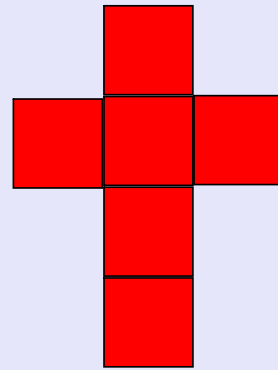


6 faces (square)

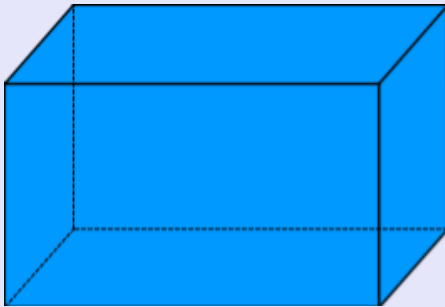
12 edges

8 vertexes

Net:



RECTANGULAR PRISM

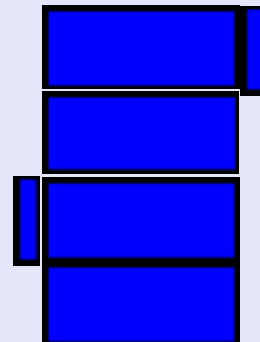


6 faces (rectangle)

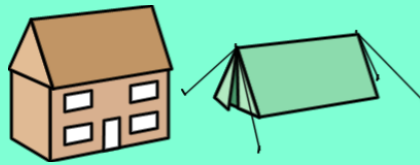
12 edges

8 vertexes

Net:



TRIANGULAR PRISM

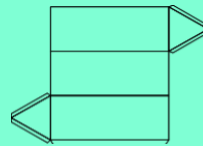


5 faces (3 rectangle
2 triangle)

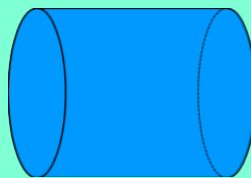
9 edges

6 vertexes

Net:

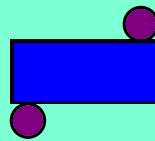


RIGHT CIRCULAR CYLINDER



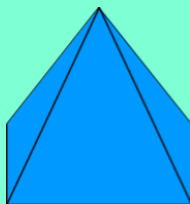
3 faces (2 circles
1 rectangle)

Net:

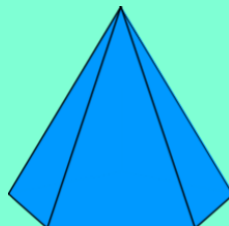


Pyramid

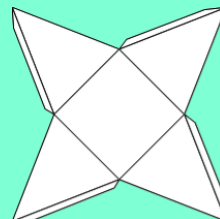
Rectangular Pyramid



Pentagonal Pyramid



Net of a cubic pyramid



Base of a pyramid can be a square, rectangle, hexagon, pentagon...The number of triangles will depend on the number of sides of the base.

Textbook: pg. 174-176 # 4-9, 12

pg. 180-182 #3, 4, 5, 9

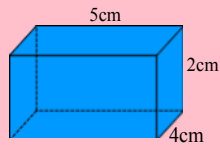
Worksheets: 74-80

Worksheets: 153, 155, 156, 157, 158, 165
(Canadian Mathematics)

Surface Area - Section 4.3

How much material is needed to cover all faces of a prism... find the area of all parts of the prism and add together.

Rectangular Prisms



Find the surface area of the following prism.

$$\begin{aligned}A_{front} &= l \times w \\ &= 5 \times 2 \\ &= 10\text{cm}^2\end{aligned}$$

$$\begin{aligned}A_{back} &= l \times w \\ &= 5 \times 2 \\ &= 10\text{cm}^2\end{aligned}$$

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

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

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

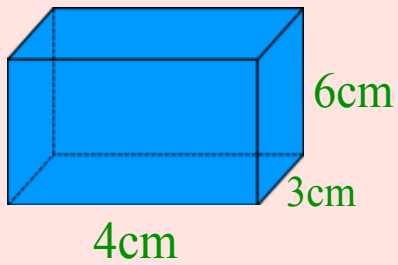
$$\begin{aligned}A_{bottom} &= l \times w \\ &= 5 \times 4 \\ &= 20\text{cm}^2\end{aligned}$$

Surface Area Total =

$$10\text{cm}^2 + 10\text{cm}^2 + 8\text{cm}^2 + 8\text{cm}^2 + 20\text{cm}^2 + 20\text{cm}^2$$

$$= 76\text{cm}^2$$

Example #2:

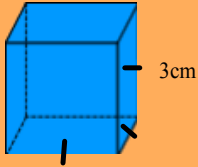


$$A_{front/back} = l \times w$$

$$A_{side/side} = l \times w$$

$$A_{top/bottom} = l \times w$$

CUBE

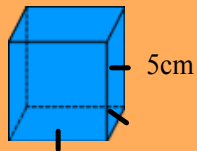


= (all sides are equal and there are 6 sides So ...)

$$\begin{aligned} A &= l \times w \\ &= 3 \times 3 \\ &= 9\text{cm}^2 \times 6(\text{sides}) \\ &= 54\text{cm}^2 \end{aligned}$$

Example #2:

Find the surface area.

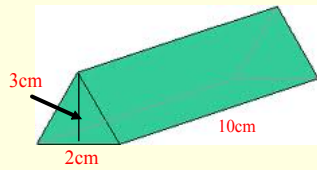


Textbook: page 186-187 # 4-13

Work book: pages 81 - 82

Worksheets: D-64

TRIANGULAR PRISM - Section 4.4

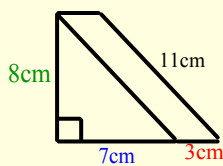


$$\begin{aligned}
 A_{\text{rectan gles}} &= l \times w \\
 &= 10 \times 2 \\
 &= 20 \times 3 (\text{rectan gles}) \\
 &= 60 \text{cm}^2
 \end{aligned}$$

$$\begin{aligned}
 A_{\text{triangles}} &= \frac{b \times h}{2} \\
 &= \frac{2 \times 3}{2} \\
 &= \frac{6}{2} \\
 &= 3 \times 2 (\text{triangles}) \\
 &= 6 \text{cm}^2
 \end{aligned}$$

$$\text{Surface Area Total} = 60 \text{cm}^2 + 6 \text{cm}^2 = 66 \text{cm}^2$$

Example # 2:



$$A_{\text{triangle}} = \frac{b \times h}{2}$$

$$A_{\text{rectan gle1}} = l \times w$$

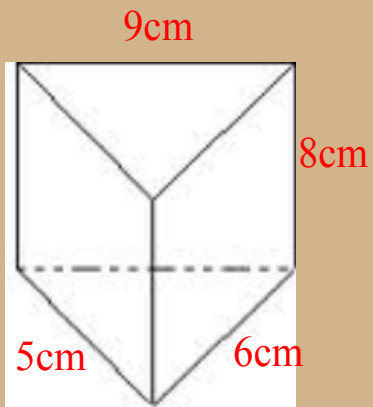
$$A_{\text{rectan gle2}} = l \times w$$

$$A_{\text{rectan gle3}} = l \times w$$

Total Surface Area =

Example #3:

Find the surface area



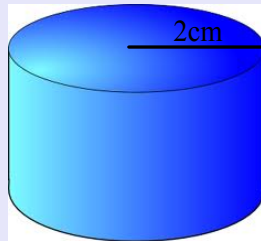
Textbook: page 191-193 # 4-14

Workbook: pages 83 - 84

Worksheets: D-65

CYLINDERS - Section 4.7

Find the surface area.



$$\begin{aligned}A_{circle} &= \pi r^2 \\ &= 3.14 \times 2^2 \\ &= 3.14 \times 4 \\ &= 12.56 \times 2 \text{ (circles)} \\ &= 25.12 \text{ cm}^2\end{aligned}$$

$$\begin{aligned}A_{rectangle} &= 2\pi r h \\ &= 2 \times 3.14 \times 2 \times 4 \\ &= 50.24 \text{ cm}^2\end{aligned}$$

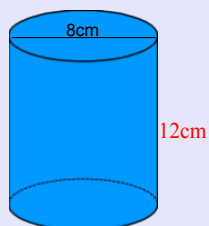
circumference of circle

$$\begin{aligned}C &= 2\pi r \\ &= 2 \times 3.14 \times 2 \\ &= 12.56 \text{ cm}\end{aligned}$$

Surface Area total:

$$\begin{aligned}A_{rectangle} + A_{circle} \\ &= 50.24 + 25.12 \\ &= 75.36 \text{ cm}^2\end{aligned}$$

Example # 2:



Find the surface area.

Textbook: page 212-214 # 4-6, 8-11, 13-15

Workbook: pages 90 - 92

Worksheets: D-66

Surface Area Review Sheet

Surface Area Quiz

Worksheets: Workbook 81-84, 90-92

D 64, 65, 66

Surface Area Review Sheet

Text book

