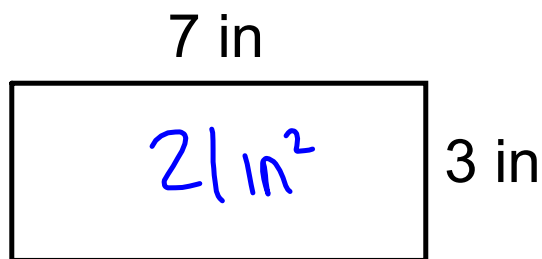


Volume & Surface Area

Do Now

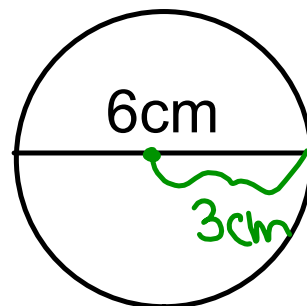
Find the area of the following figures.

1)



$$\begin{aligned} A &= l \cdot w \\ &= 7 \cdot 3 \\ &= 21 \text{ in}^2 \end{aligned}$$

2)



$$\begin{aligned} A &= \pi r^2 \\ &= \pi (3)^2 \\ &= 9\pi \\ &= 28.27 \text{ cm}^2 \end{aligned}$$

These are all examples of rectangular prisms



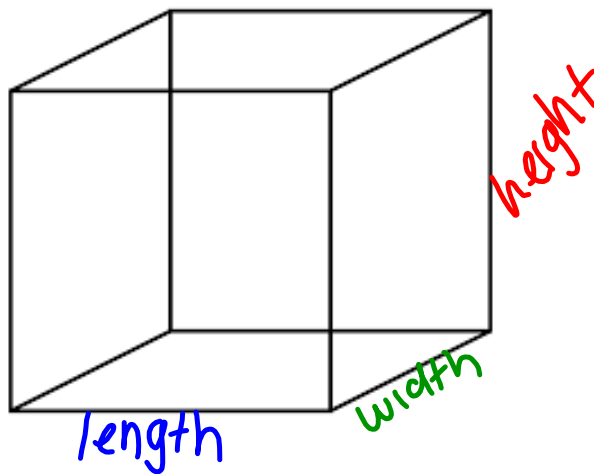
These are all examples of cylinder



These are all examples of triangular prism



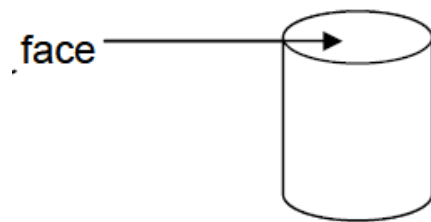
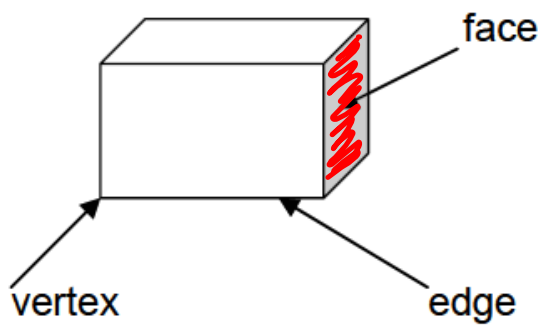
Dimensions of a 3D objects



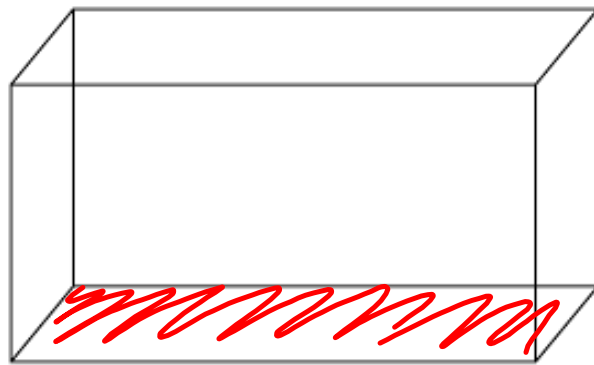
A shape is 3D when it can be measured in 3 dimensions (height, width & depth).

Dimensions of a 3D objects

Flat surfaces are called **faces**.
The faces meet at an **edge**.
The edges meet at a corner, called a **vertex**



Volume of a Rectangular Prism

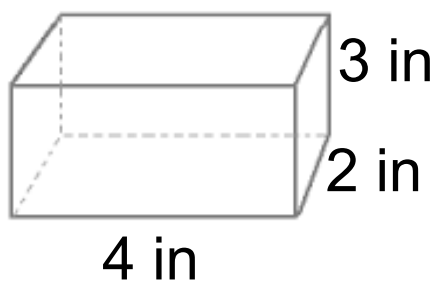


$$" V = Bh "$$

$$V = L * W * H$$

Examples:

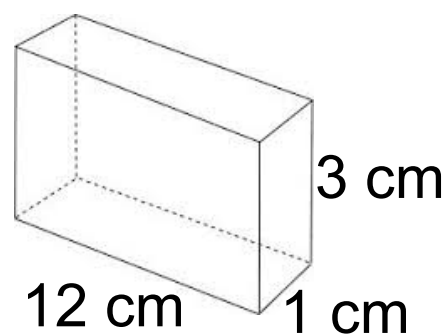
1)



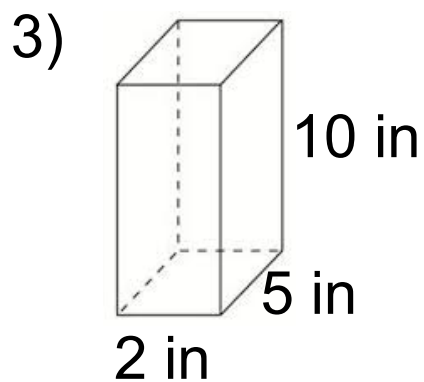
$$\begin{aligned} V &= l \cdot w \cdot h \\ &= 4 \cdot 2 \cdot 3 \\ &= 24 \text{ in}^3 \end{aligned}$$

units
are
cubed
for Volume

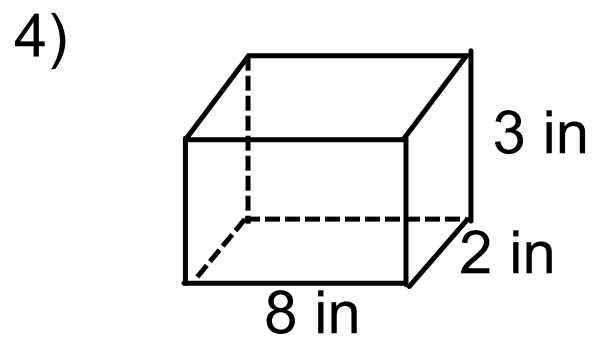
2)



$$\begin{aligned} V &= l \cdot w \cdot h \\ &= 12 \cdot 1 \cdot 3 \\ &= 36 \text{ cm}^3 \end{aligned}$$

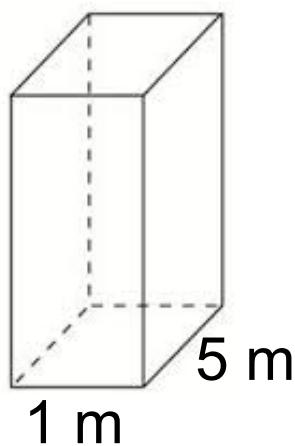


$$\begin{aligned} V &= l \cdot w \cdot h \\ &= 2 \cdot 5 \cdot 10 \\ &= 100 \text{ in}^3 \end{aligned}$$



$$\begin{aligned} V &= l \cdot w \cdot h \\ &= 8 \cdot 2 \cdot 3 \\ &= 48 \text{ in}^3 \end{aligned}$$

5)



Given area = 35 m^2 , how do we find the height?

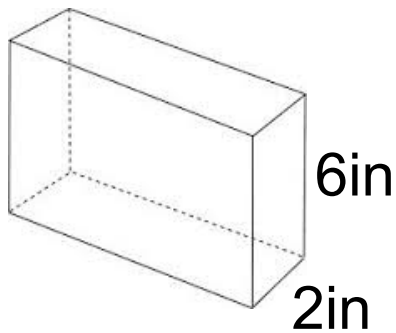
$$V = l \cdot w \cdot h$$

$$35 = 1 \cdot 5 h$$

$$\frac{35}{5} = \frac{5h}{5}$$

$$7\text{m} = h$$

6)



Given area = 48 in^2 , how do we find the length?

$$V = l \cdot w \cdot h$$

$$48 = L \cdot 2 \cdot 6$$

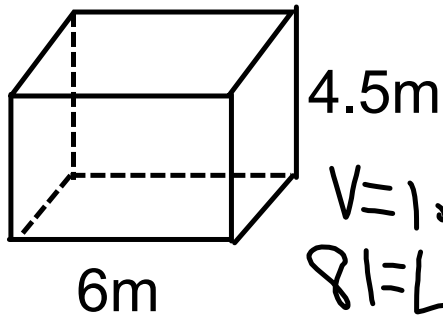
$$\frac{48}{12} = \frac{12L}{12}$$

$$L = 4 \text{ in}$$

Practice:

7) Area = 81m^2

Find width.



$$V = l \cdot w \cdot h$$

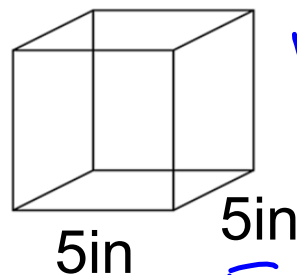
$$81 = L \cdot w \cdot 4.5$$

$$\frac{81}{27} = \frac{27L}{27}$$

$$3\text{m}$$

8) Area = 175in^2

Find height



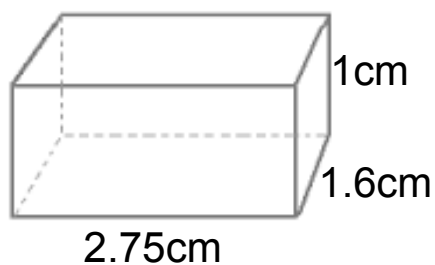
$$V = l \cdot w \cdot h$$

$$5 \cdot 5 = 25\text{in}$$

$$175 \div 25$$

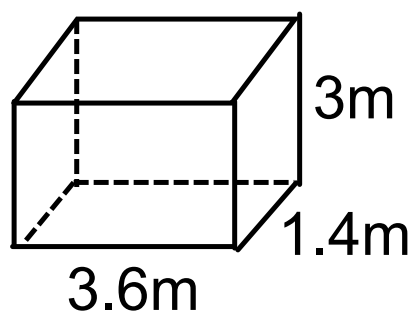
$$\boxed{7\text{in}}$$

9) Find Area.



$$\begin{aligned} V &= l \cdot w \cdot h \\ V &= 2.75 \cdot 1.6 \cdot 1 \\ V &= 4.4 \text{ cm}^3 \end{aligned}$$

10) Find Area.



$$15.12 \text{ m}^3$$