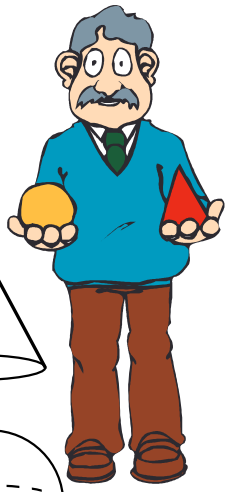
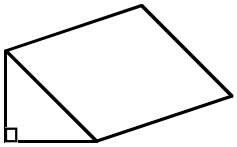
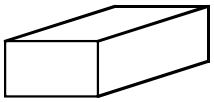
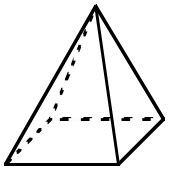
# Prisms 1.

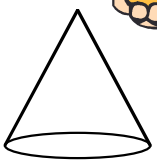


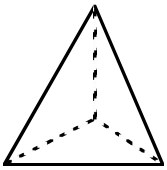
1). Draw each of the following shapes. Underneath each drawing write
   i). the name of the solid.
   ii). the number of **Faces**, **Vertices** and **Edges** that belong to the solid.

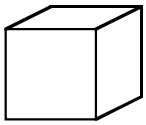
a). 

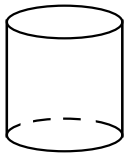
b). 

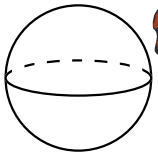
c). 

d). 

e). 

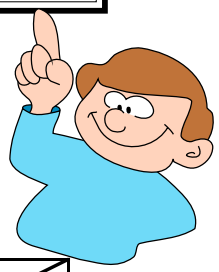
f). 

g). 

h). 

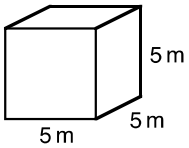
2). **A prism is a solid with a uniform cross section (the same shape and size).**

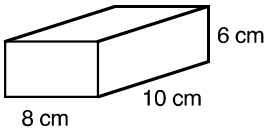
For each of the above solids, state if it is "a prism" or "not a prism".

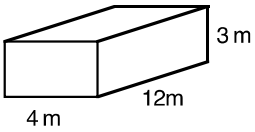


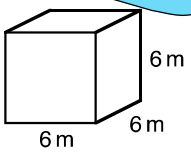
**The volume of a prism = area of cross section x length**

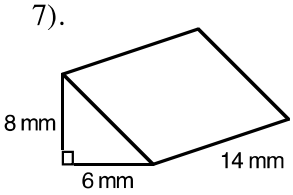
Find the volume of the following prisms.

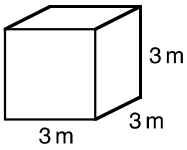
3). 

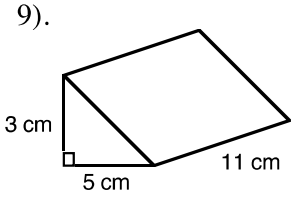

4). 

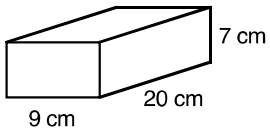

5). 

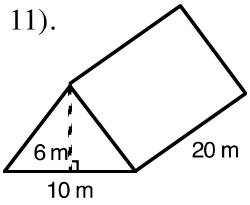

6). 

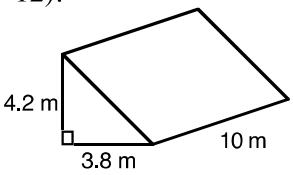

7). 

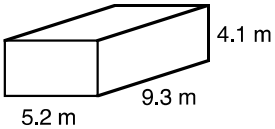

8). 

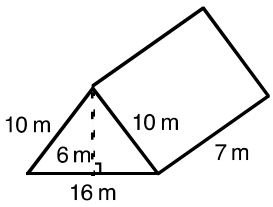

9). 

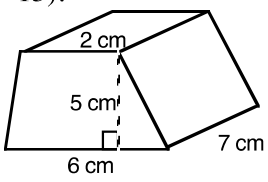

10). 

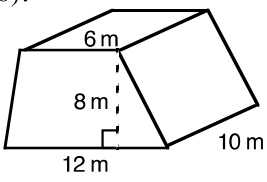

11). 

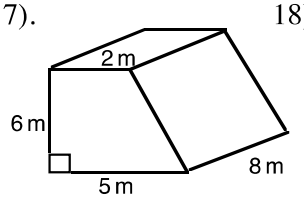

12). 

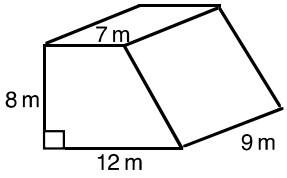

13). 

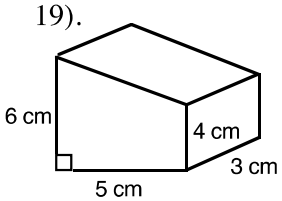

14). 

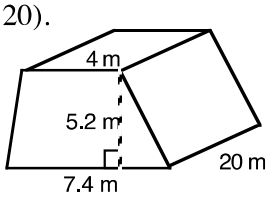

15). 

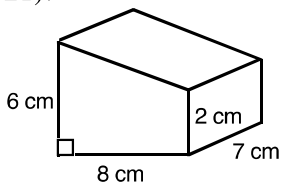

16). 

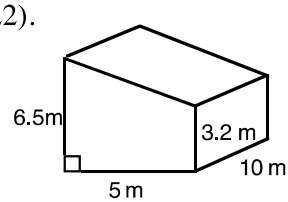

17). 


18). 


19). 

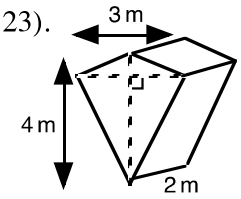

20). 


21). 

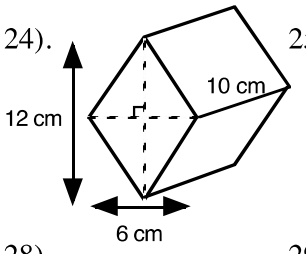

22). 

Let $\pi = 3.14$ where necessary. Leave the answers to a sensible degree of accuracy.

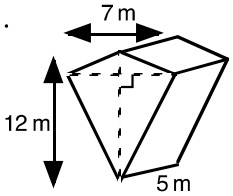
23).



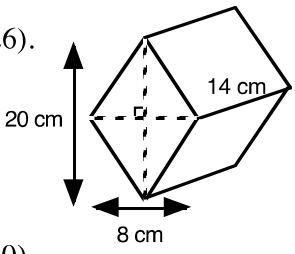

24).



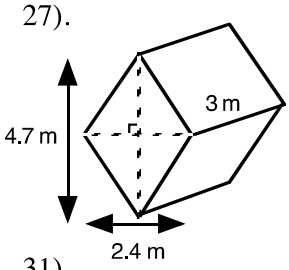

25).



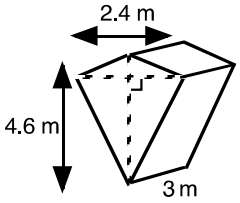

26).



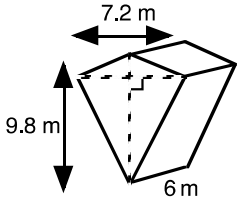

27).



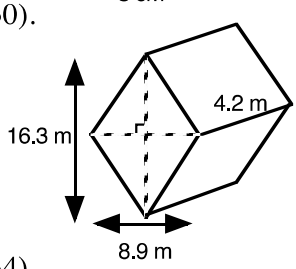

28).



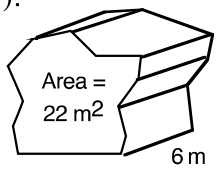

29).



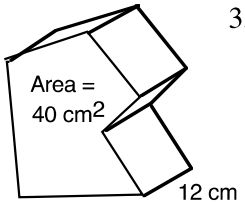

30).



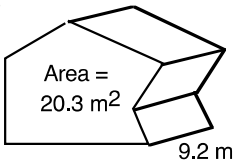

31).



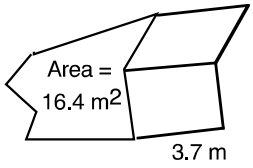

32).



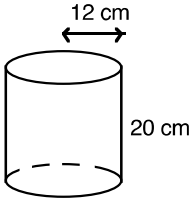

33).



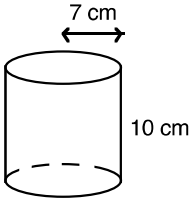

34).



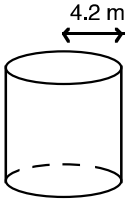

35).



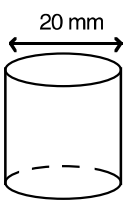

36).

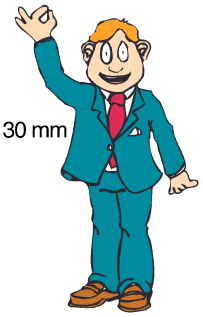



37).

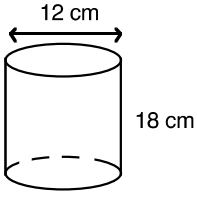



38).

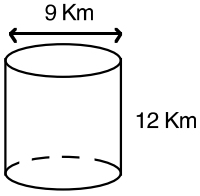


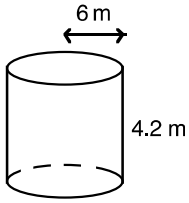
39).



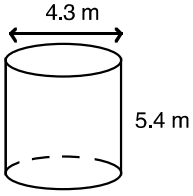

40).



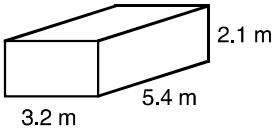

41).



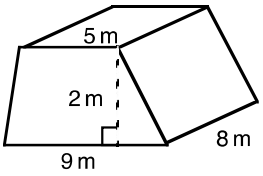

42).



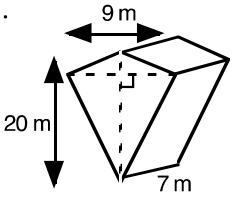

43).



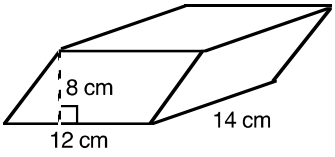

44).



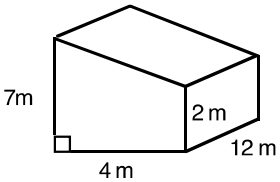

45).



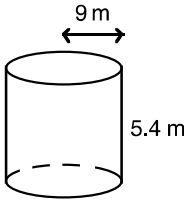

46).



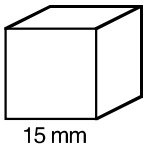

47).



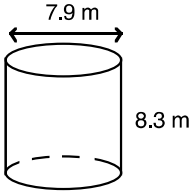

48).



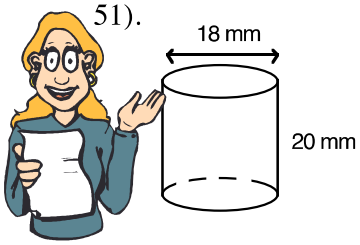

49).



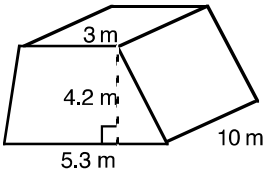

50).



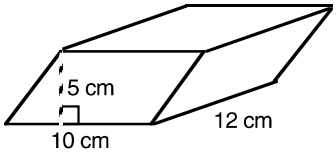

51).



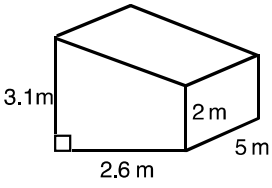

52).




53).




54).

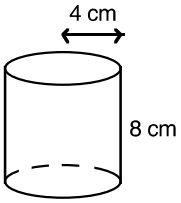


# Prisms 2.

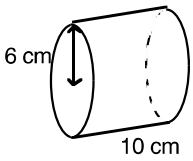
Take $\pi = 3.14$ where necessary.

1). Find the **curved surface area** of each of these cylinders.

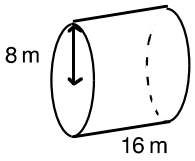
a).



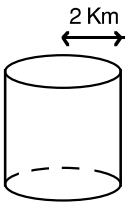

b).



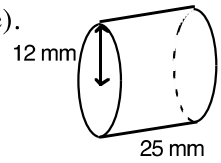

c).



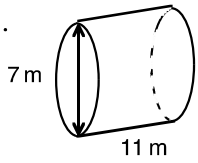

d).



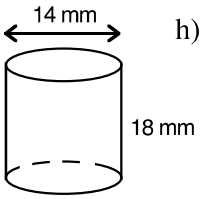

e).



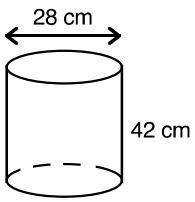

f).




g).



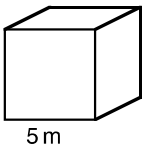

h).



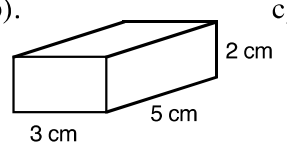

2). Find the **total surface area** of the cylinders above.

3). For each of the following solids find i). the volume, ii). the total surface area.

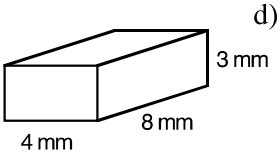
a).



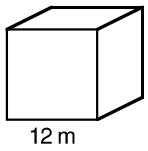

b).



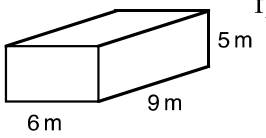

c).



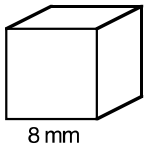

d).



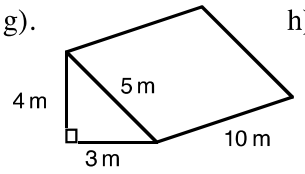

e).



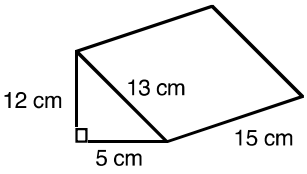

f).



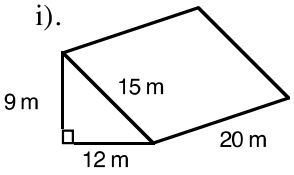

g).



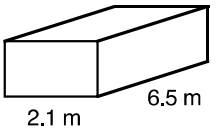

h).



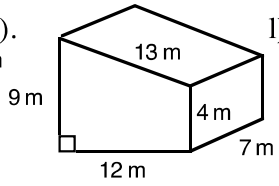

i).



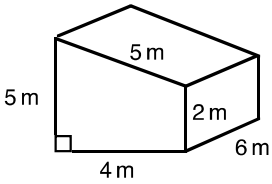

j).



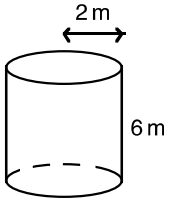

k).



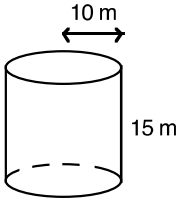

l).



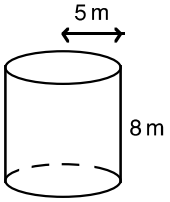

m).



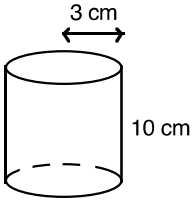

n).




o).




p).

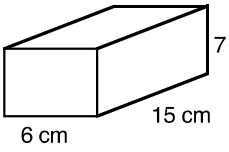


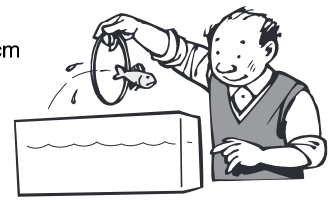

4). A rectangular box has a base 15 cm by 6 cm.

a). What is the area of the base ?

The height is 7 cm.

b). What is the volume of the box ?



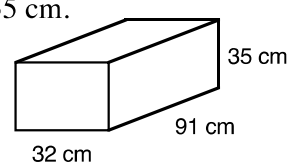



5). Billy buys a fish tank. The dimensions are 32 cm by 91 cm by 35 cm.

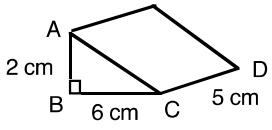
a). Calculate the volume of the fish tank in $cm^3$.

b). How many litres of water will it hold when full ?

( 1000 $cm^3$ = 1 litre)




6).

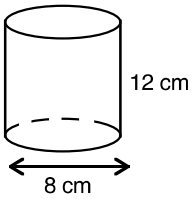



The diagram shows a triangular prism.

a). Calculate the area of triangle ABC.

b). Calculate the volume of the prism.

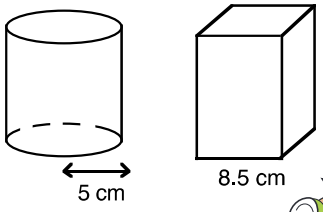
7). A plastic beaker has a height of 12 cm and a circular base of diameter 8 cm.




a). Calculate the volume of the beaker.

b). A label covers **all** the curved surface area. What is the area of the label ?

8). Dog food comes in two types of tins. A square based tin of side 8.5 cm and a circular based tin of radius 5 cm.




a). Calculate the area of the base of

i). the square based tin,

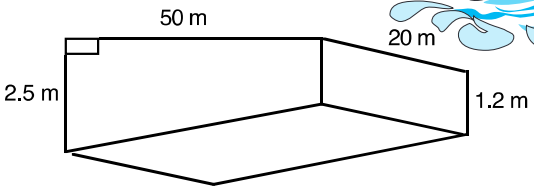
ii). the circular based tin.

b). The height of the square based tin is 15 cm.
The height of the circular based tin is 13 cm.

i). Find the volumes of both tins.

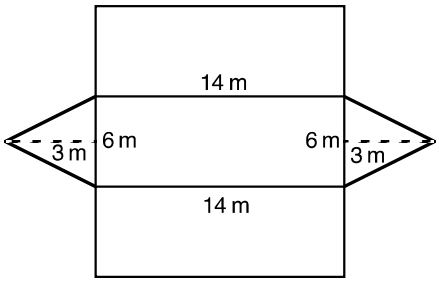
ii). Which holds the more and by how much ?

9). This is the diagram of an Olympic sized swimming pool (not drawn to scale).
Calculate the volume of the pool in $m^3$.





10).

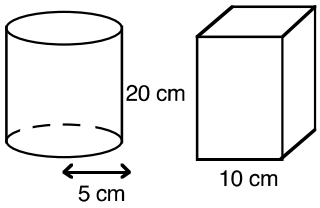



Here is a net of a shape.
The net will fold up to make a solid.

a). What is the name of the solid ?

b). What is the volume of the solid ?

11). A circular can and a square based can both have the same height of 20 cm. The circular based can has a radius of 5 cm and the square based can has a side of length 10 cm. Both are used to hold soup.




a). i). Calculate the volume of each type of can in $cm^3$.

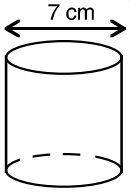
ii). Change these volumes to capacity in litres.

A School Kitchen pan can hold 32 litres of soup.

b). i). How many square based cans will it take to fill the pan ?

ii). How many circular based cans will it take to fill the pan ?

12). Smith's Soup is canned at the factory. Each morning they make 500 litres of soup. This is put into cylindrical cans, each of which is 8.4 cm tall and has a diameter of 7 cm.
How many cans are filled from the 500 litres of soup ?




# Dimensional Units.

In the following expressions a and b represent lengths. Decide whether each expression is a **volume**, an **area**, a **length**, or **none** of these.

| | | | |
|---|---|---|---|
| 1). $\pi b$ | 2). $a + b$ | 3). $2a + 3b^2$ | 4). $a^2 - 3ab$ |
| 5). $4b^3$ | 6). $2ab$ | 7). $ab^2$ | 8). $3a^2 + b^2$ |
| 9). $b + 2a^3$ | 10). $a^2 - ab$ | 11). $\pi b^2$ | 12). $2b^3 - 3a^2$ |
| 13). $2a \times 3b$ | 14). $3b^2a$ | 15). $3a^2 \times b$ | 16). $4b^3 - 2b + a$ |
| 17). $4 \times ab$ | 18). $\pi a^2b$ | 19). $2(a + 3b)$ | 20). $a + ab + 2b$ |
| 21). $a(2a - 4b)$ | 22). $6a \times b^2$ | 23). $4a \times 5b^2$ | 24). $b^2 - 3ab$ |
| 25). $3b^3 - a + b^2$ | 26). $4a^2b - b^3$ | 27). $\pi a(a + b)$ | 28). $2a(a - 2b^2)$ |
| 29). $7a - 4b$ | 30). $2a(a + b^2)$ | 31). $2b^3 - 4ab$ | 32). $2a(a + b)$ |