1.

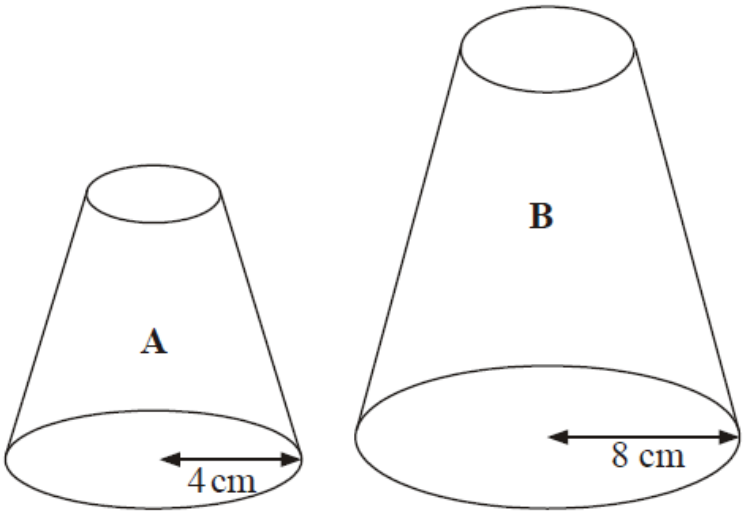



Diagram NOT accurately drawn

Two solid shapes, A and B, are mathematically similar.
The base of shape A is a circle with radius 4 cm.
The base of shape B is a circle with radius 8 cm.
The surface area of shape A is 80 $cm^2$.

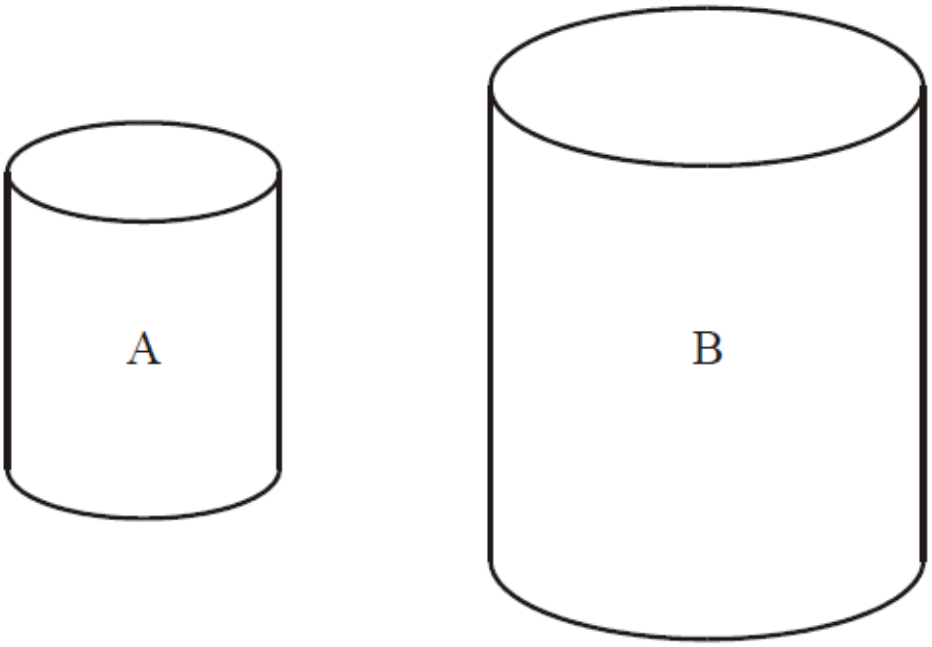
(a) Work out the surface area of shape B.

..... $cm^2$ (2)

The volume of shape B is 600 $cm^3$.

(b) Work out the volume of shape A. ..... $cm^3$ (2)

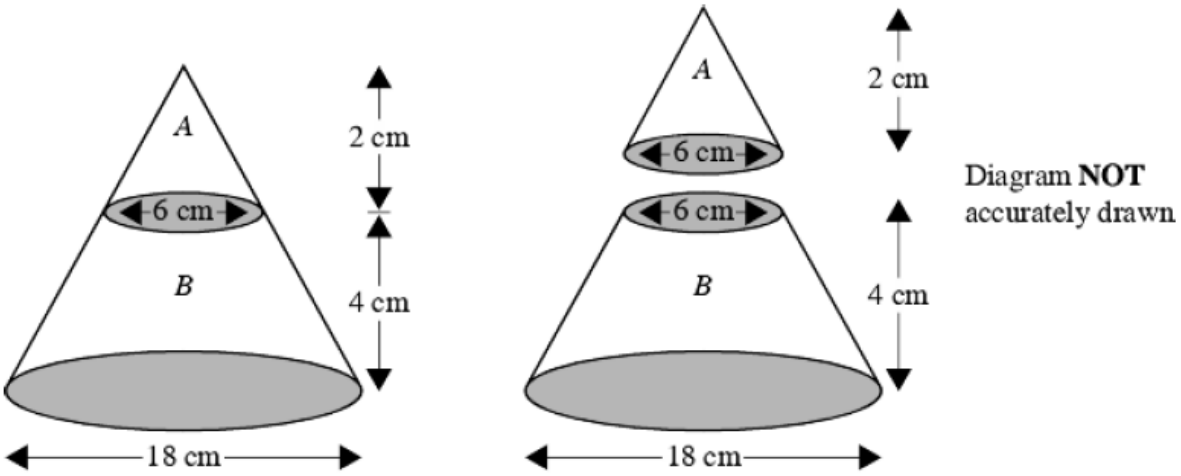
2.




The two cylinders, A and B, are mathematically similar.
The height of cylinder B is twice the height of cylinder A.
The total surface area of cylinder A is 180 $cm^2$.

Calculate the total surface area of cylinder B.

3.




The diagram represents a large cone of height 6 cm and base diameter 18 cm.

The large cone is made by placing a small cone A of height 2 cm and base diameter 6 cm on top of a frustum B.

Calculate the volume of the frustum B. ..... (4)
Give your answer in terms of $\pi$ .

4.

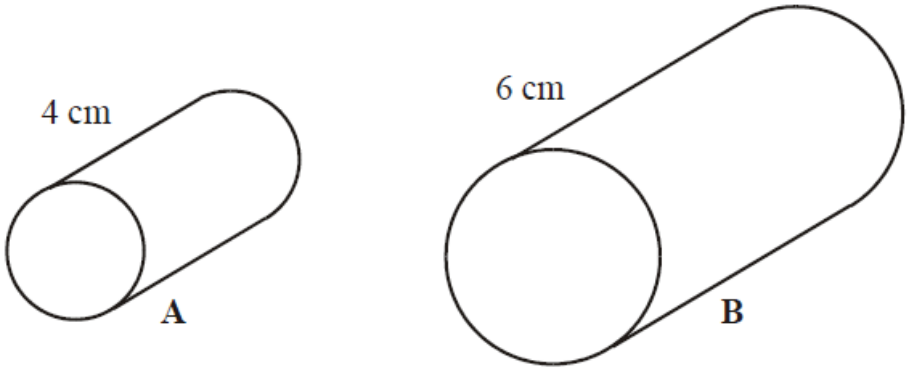



Diagram **NOT** accurately drawn

Cylinder A and cylinder B are mathematically similar.
The length of cylinder A is 4 cm and the length of cylinder B is 6 cm.
The volume of cylinder A is 80 $cm^3$.
Calculate the volume of cylinder B.

..... $cm^3$ (3)

5.

X and Y are two geometrically similar solid shapes.

The total surface area of shape X is 450 $cm^{2.}$
The total surface area of shape Y is 800 $cm^{2.}$

The volume of shape X is 1350 $cm^{3.}$

Calculate the volume of shape Y. ..... $cm^3$ (3)

6.

Diagram **NOT** accurately drawn

Two cylinders, P and Q, are mathematically similar.

The total surface area of cylinder P is $90\pi$ $cm^2$.
The total surface area of cylinder Q is $810\pi$ $cm^2$.

The length of cylinder P is 4 cm.

(a) Work out the length of cylinder Q.

..... cm (3)

The volume of cylinder P is $100\pi$ $cm^3$.

(b) Work out the volume of cylinder Q.
Give your answer as a multiple of $\pi$.

..... $cm^3$ (2)