1.

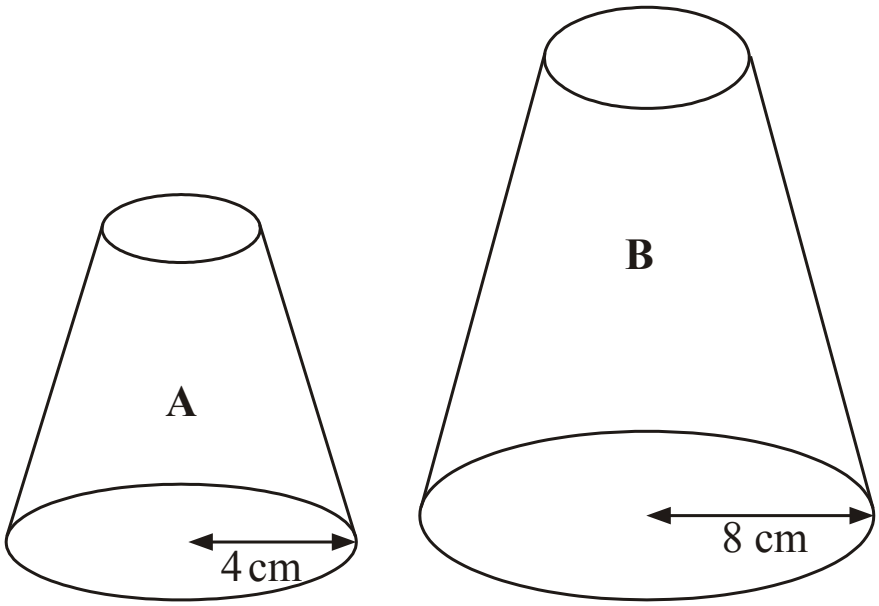


Diagram NOT accurately drawn

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.

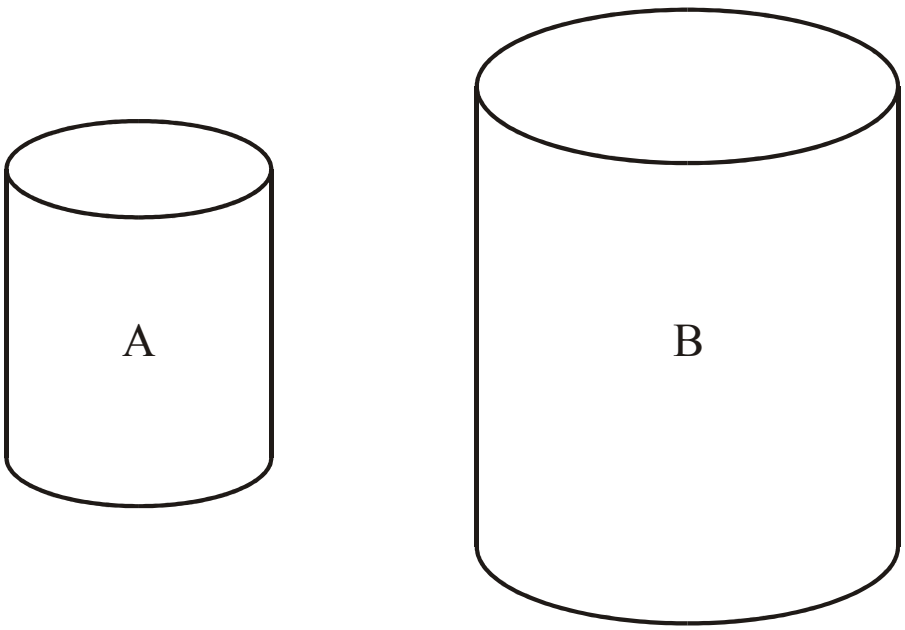
..... cm^2 (2)

The volume of shape B is 600 cm^3.

(b) Work out the volume of shape A.

..... cm^3 (2)

2.

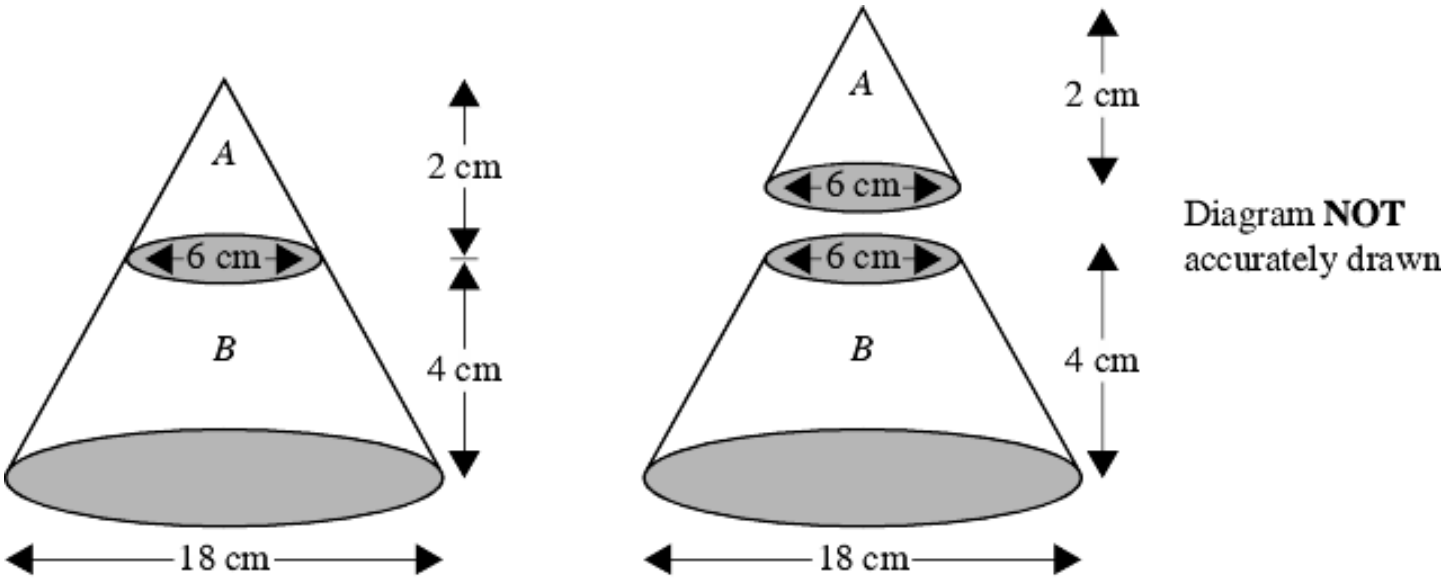


The two cylinders, A and B, are mathematically similar.
The height of cylinder B is twice the height of cylinder A.
The total surface area of cylinder A is 180 cm^2.

Calculate the total surface area of cylinder B.

..... (3)

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.
Give your answer in terms of π.

..... (4)

4.

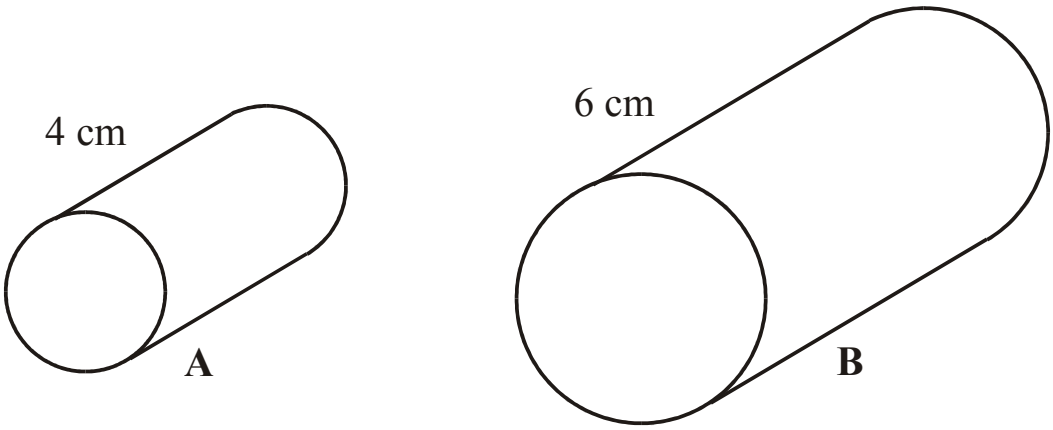


Diagram **NOT** accurately drawn

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.

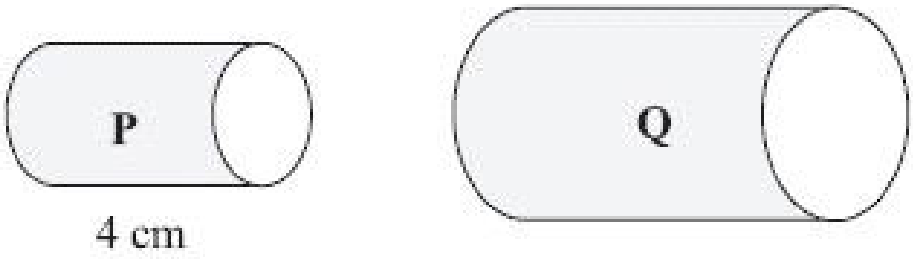


Diagram **NOT** accurately drawn

Two cylinders, P and Q, are mathematically similar.

The total surface area of cylinder P is 90π cm^2.
The total surface area of cylinder Q is 810π cm^2.

The length of cylinder P is 4 cm.

(a) Work out the length of cylinder Q.

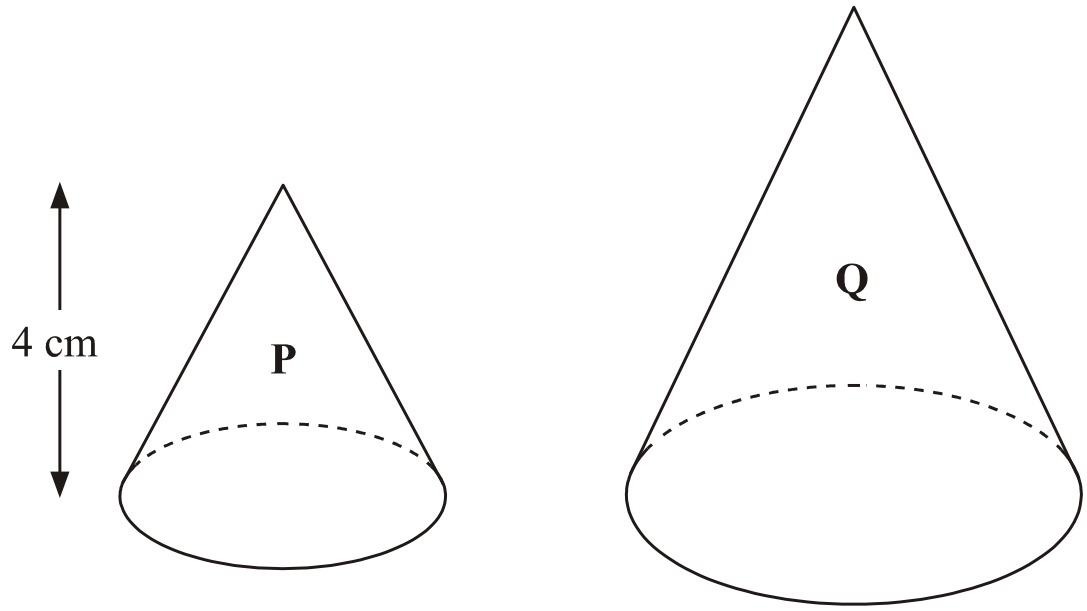
..... cm (3)

The volume of cylinder P is 100π cm^3.

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

..... cm^3 (2)

7.



Two cones, P and Q, are mathematically similar.

The total surface area of cone P is 24 $cm^{2.}$
The total surface area of cone Q is 96 $cm^{2.}$

The height of cone P is 4 cm.

(a) Work out the height of cone Q.

..... cm (3)

The volume of cone P is $12cm^3$

(b) Work out the volume of cone Q.

..... cm^3 (2)