

Similar Shapes (Area and Volume)

Question Paper

Level	GCSE
Subject	Maths
Exam Board	Edexcel GCSE
Topic	Similar Shapes (Area and Volume)
Grade Level	Grade 6
Booklet	Question Paper

Time Allowed: 33 minutes

Score: /27

Percentage: /100

Grade Boundaries:

1.

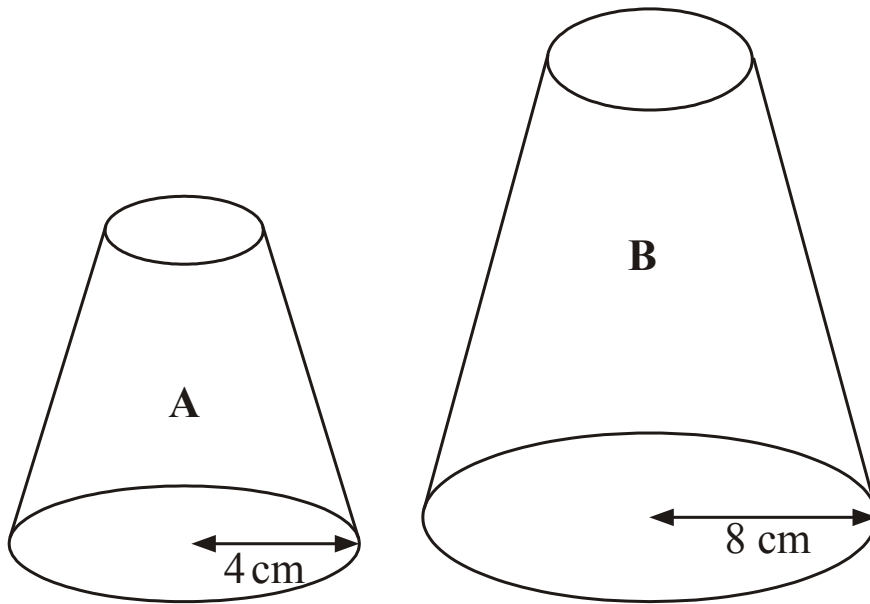


Diagram NOT accurately drawn

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.

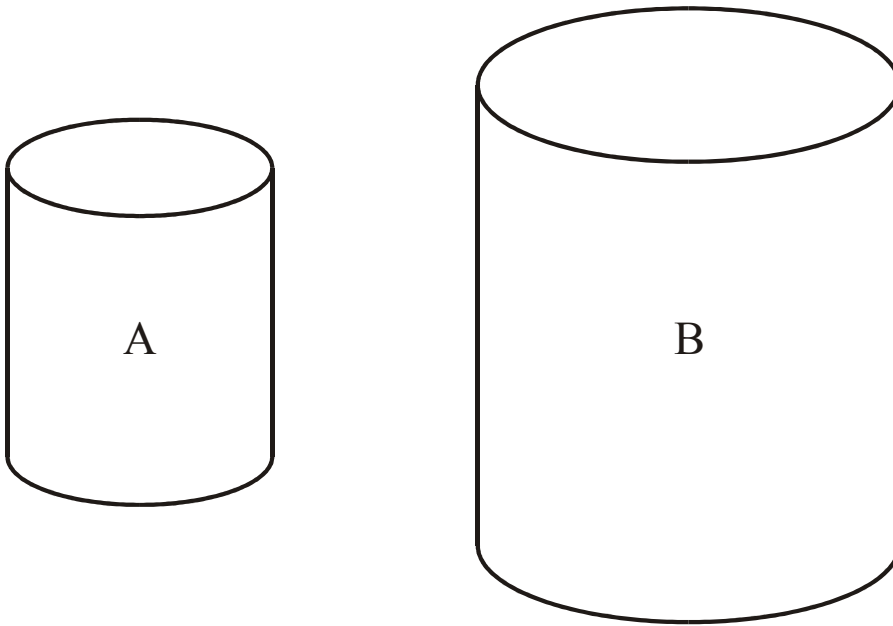
..... cm^2 (2)

The volume of shape B is 600 cm^3 .

(b) Work out the volume of shape A.

..... cm^3 (2)

2.

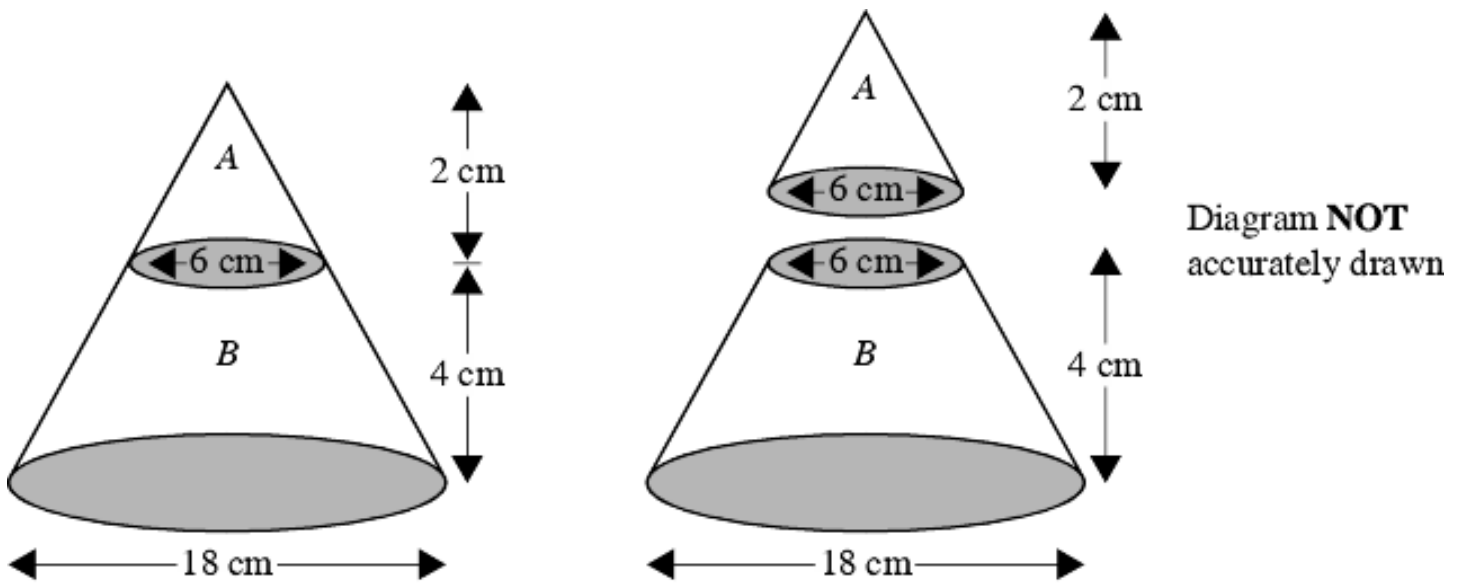


The two cylinders, A and B, are mathematically similar.
The height of cylinder B is twice the height of cylinder A.
The total surface area of cylinder A is 180 cm^2 .

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.

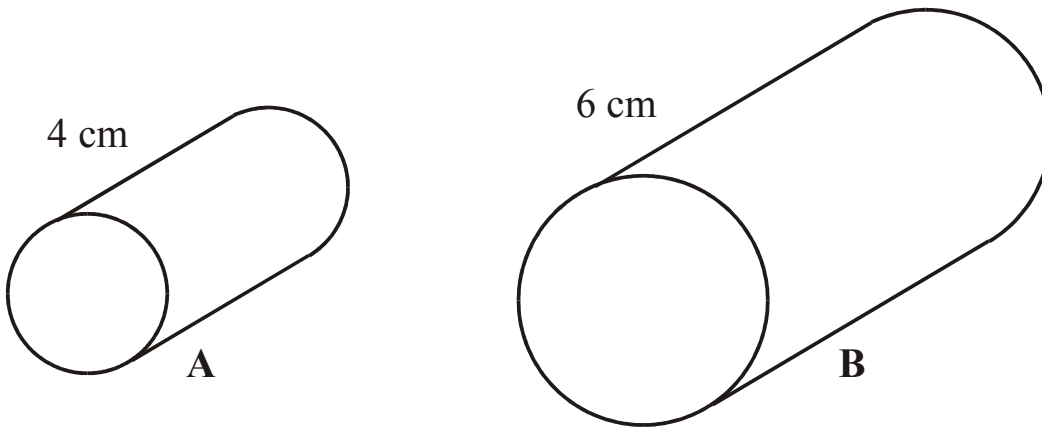


Diagram **NOT**
accurately drawn

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.

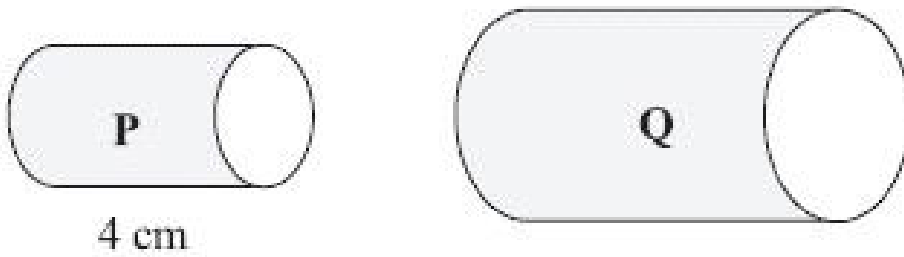


Diagram **NOT**
accurately drawn

Two cylinders, P and Q, are mathematically similar.

The total surface area of cylinder P is $90\pi \text{ cm}^2$.

The total surface area of cylinder Q is $810\pi \text{ cm}^2$.

The length of cylinder P is 4 cm.

(a) Work out the length of cylinder Q.

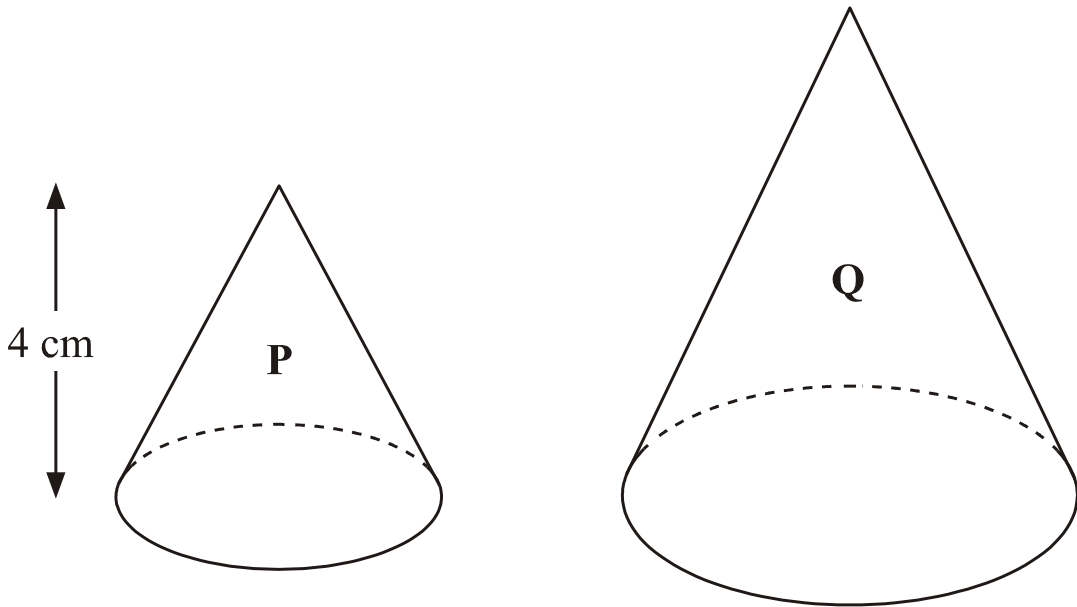
..... cm (3)

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

(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 12 cm^3

(b) Work out the volume of cone Q.

..... cm^3 (2)