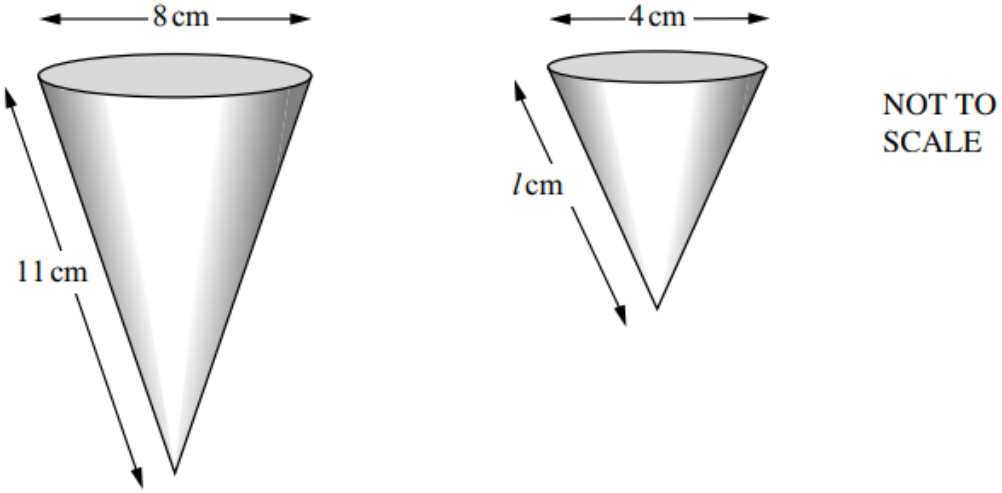
IGCSE PAST PAPER 0580 MATHS

Similar triangles area and volume extended paper 2

WRITTEN BY RISHI

1



The two cones are similar.

(a) Write down the value of l.

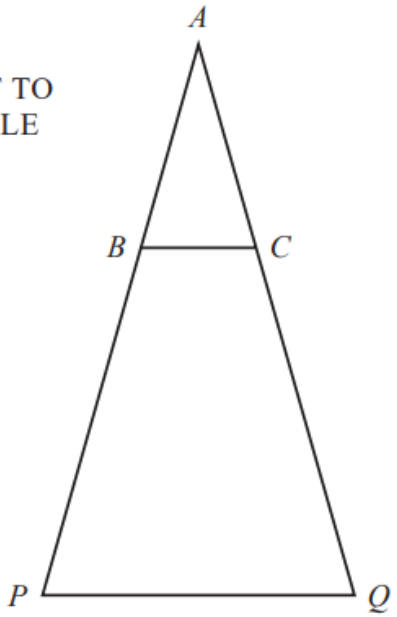
Answer (a) $l =$ ..... [1]

(b) When full, the larger cone contains 172 cm^3 of water.
How much water does the smaller cone contain when it is full?

Answer (b) ..... cm^3 [2]

2

NOT TO SCALE



The area of triangle APQ is 99 cm^2 and the area of triangle ABC is 11 cm^2. BC is parallel to PQ and the length of PQ is 12 cm.

Calculate the length of BC.

Answer BC = ... cm [3]

0580/2, 0581/2 Jun/04

3 A car manufacturer sells a similar, scale model of one of its real cars.

(a) The fuel tank of the real car has a volume of 64 litres and the fuel tank of the model has a volume of 0.125 litres.
Show that the length of the real car is 8 times the length of the model car.

Answer(a)

[2]

(b) The area of the front window of the model is 0.0175 m^2.
Find the area of the front window of the real car.

Answer(b) ..... m^2 [2]

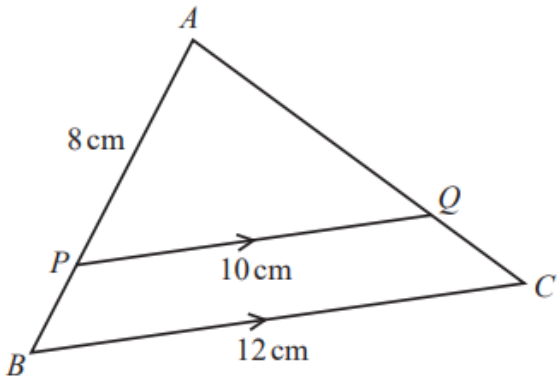
0580/02/O/N/07

4 A cylindrical glass has a radius of 3 centimetres and a height of 7 centimetres.
A large cylindrical jar full of water is a similar shape to the glass.
The glass can be filled with water from the jar exactly 216 times.
Work out the radius and height of the jar.

Answer radius ..... cm

height ..... cm [3]

5

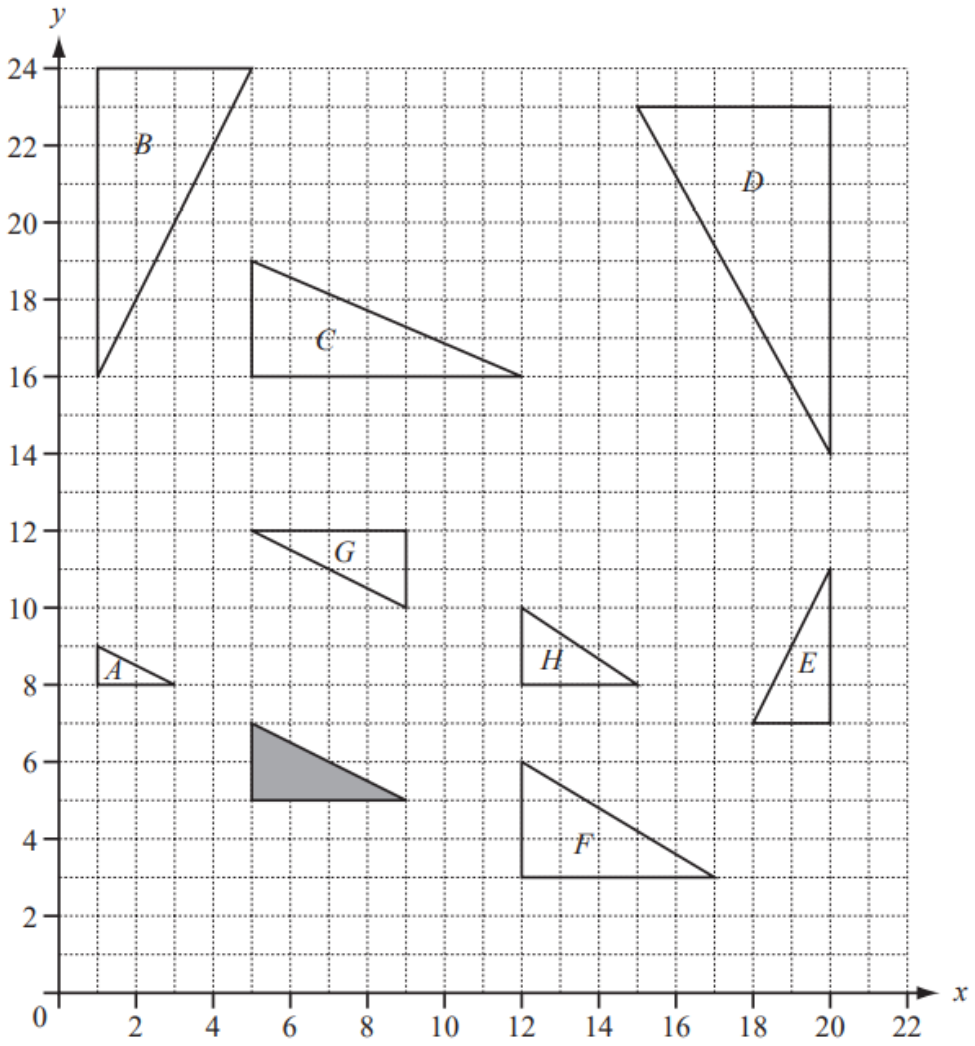


NOT TO SCALE

APB and *AQC* are straight lines. *PQ* is parallel to *BC*.
AP = 8 cm, *PQ* = 10 cm and *BC* = 12 cm.
Calculate the length of *AB*.

Answer AB = ... cm [2]

5



Write down the letters of all the triangles which are

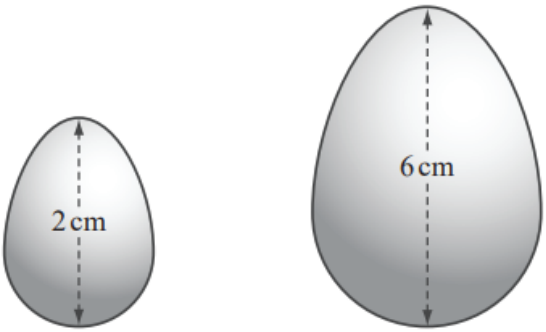
(a) congruent to the shaded triangle,

Answer(a) ..... [2]

(b) similar, but not congruent, to the shaded triangle.

Answer(b) ..... [2]

7



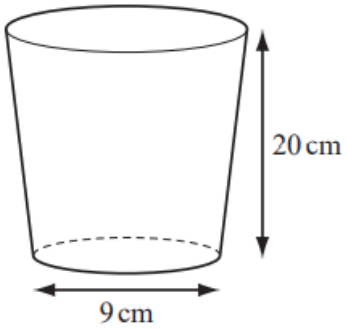
NOT TO SCALE

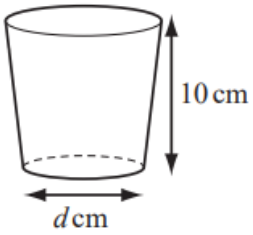
A company makes solid chocolate eggs and their shapes are mathematically similar.
The diagram shows eggs of height 2 cm and 6 cm.
The mass of the small egg is 4 g.

Calculate the mass of the large egg.

Answer ..... g [2]

8





NOT TO SCALE

The diagrams show two mathematically similar containers.
The larger container has a base with diameter 9 cm and a height 20 cm.
The smaller container has a base with diameter d cm and a height 10 cm.

(a) Find the value of d.

Answer(a) $d =$ ..... [1]

(b) The larger container has a capacity of 1600 ml.

Calculate the capacity of the smaller container.

Answer(b) ..... ml [2]