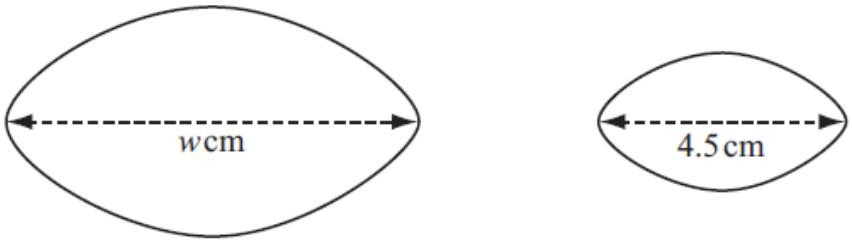
5.5 – Similarity

Student name: _____ Score: _____

1.



NOT TO SCALE

The diagrams show two similar shapes.
The lengths shown in the diagrams are in the ratio 2 : 1.

(a) Calculate the value of w.

w = ... [1]

(b) The area of the larger shape is 56 cm^2.

Calculate the area of the smaller shape.

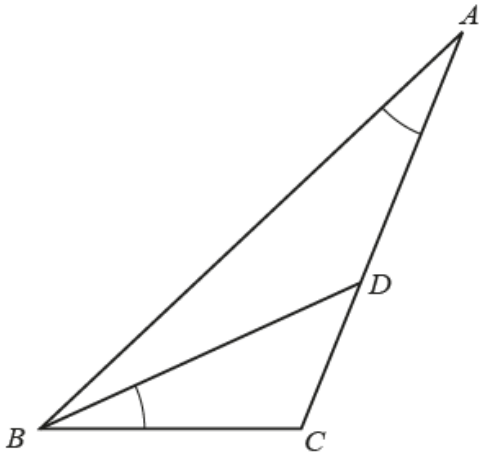
..... cm^2 [2]

2. Two mathematically similar containers have heights of 3 cm and 6 cm.
The larger container, when full, can hold 320 ml of water.

Calculate how much water the smaller container can hold when full.

..... ml [2]

3.



NOT TO SCALE

ADC is a straight line and angle BAC = angle DBC.

(a) Complete the following statement.

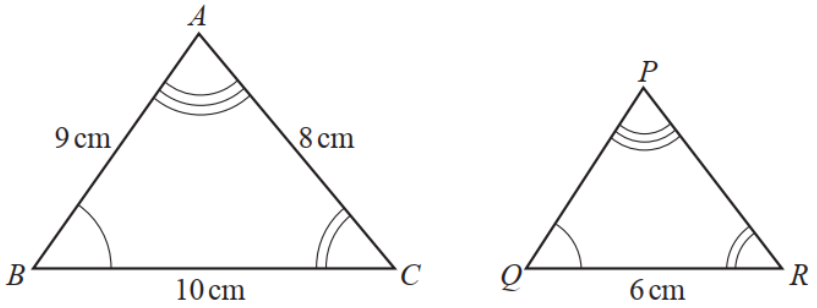
Triangle ACB is similar to triangle ..... cm [1]

(b) $BC = 6$ cm and $CD = 4$ cm.

Calculate the length AC.

AC = ... cm [2]

4.



NOT TO SCALE

The diagram shows two similar triangles, *ABC* and *PQR*.

(a) Find the length of *PR*.

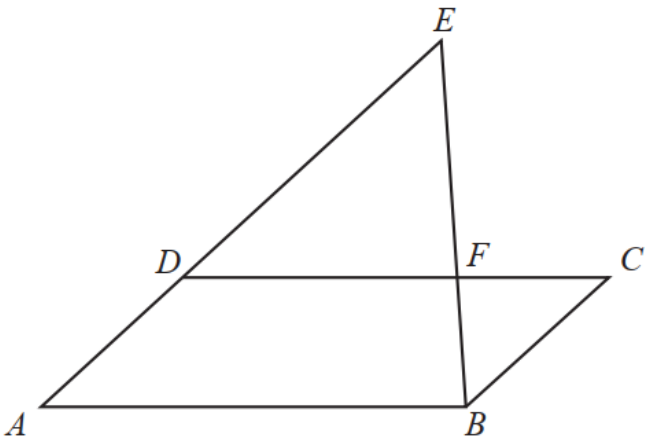
PR = ... cm [2]

(b) The triangles are the cross-sections of mathematically similar prisms.
The volume of the larger prism is 500 cm^3.

Find the volume of the smaller prism.

..... cm^3 [2]

5.



NOT TO SCALE

ABCD is a parallelogram.
EDA and *EFB* are straight lines.

(a) Show that triangles *EDF* and *BCF* are similar.

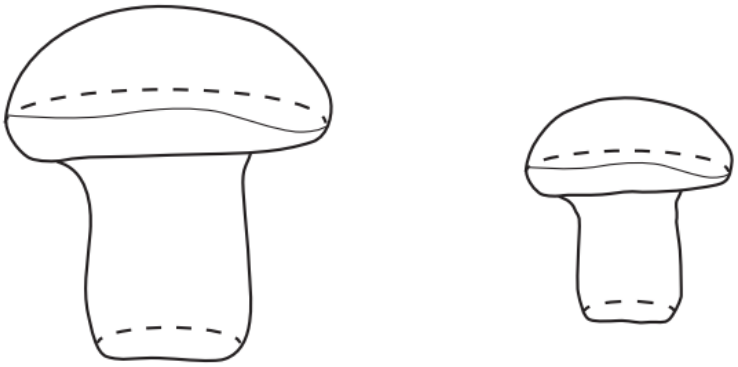
[2]

(b) *BC* = 4 cm, *DE* = 5 cm and *FB* = 3 cm.

Find *EF*.

EF = ... cm [2]

6.



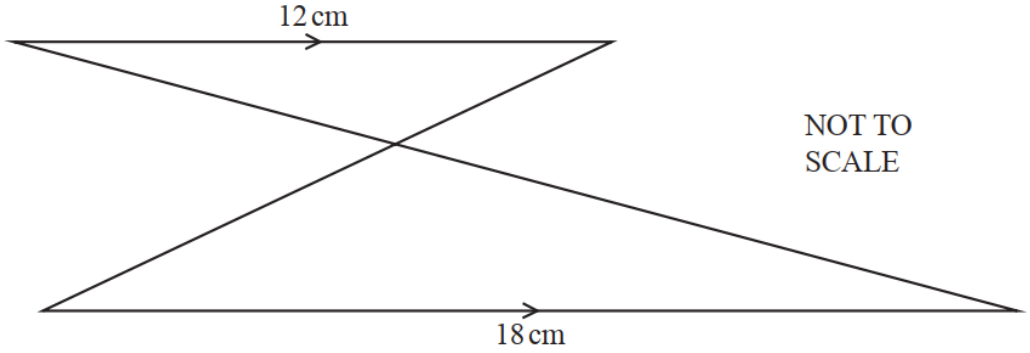
NOT TO SCALE

The two solids are mathematically similar.
The larger solid has a volume of 64 cm^3.
The smaller solid has a volume of 8 cm^3 and a height of 5 cm.

Work out the height of the larger solid.

..... cm [3]

7.



NOT TO SCALE

The diagram shows two triangles formed by two parallel lines and two intersecting lines.

(a) Use one of these words to complete the statement.

alternate congruent similar cyclic parallel

The triangles are ..... [1]

(b) The area of the smaller triangle is 24 cm^2.

Calculate the area of the larger triangle.

..... cm^2 [2]