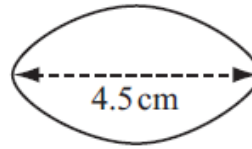
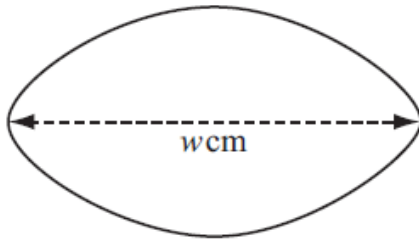




5.5 – Similarity

Student name: _____ **Answers** 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 .

$w = \dots\dots\dots 9 \dots\dots\dots$ [1]

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

Calculate the area of the smaller shape.

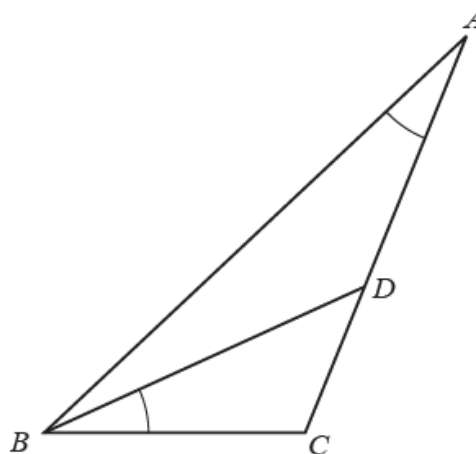
$\dots\dots\dots 14 \dots\dots\dots \text{cm}^2$ [2]

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.

$\dots\dots\dots 40 \dots\dots\dots \text{ml}$ [2]

3.



NOT TO
SCALE

ADC is a straight line and angle $BAC = \text{angle } DBC$.

(a) Complete the following statement.

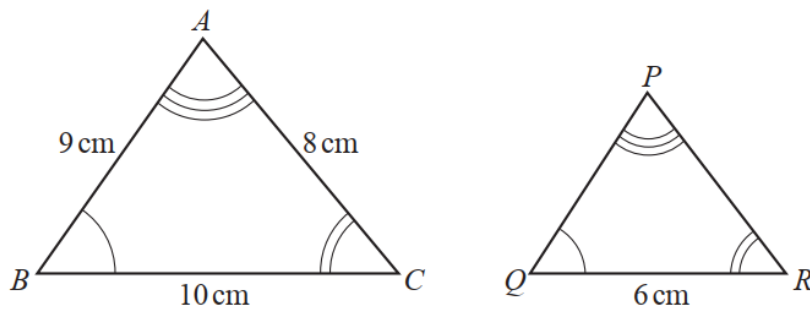
Triangle ACB is similar to triangle $\dots\dots\dots BCD \dots\dots\dots$ cm [1]

(b) $BC = 6 \text{ cm}$ and $CD = 4 \text{ cm}$.

Calculate the length AC .

$AC = \dots\dots\dots 9 \dots\dots\dots \text{cm}$ [2]

4.



NOT TO
SCALE

The diagram shows two similar triangles, ABC and PQR .

- (a) Find the length of PR .

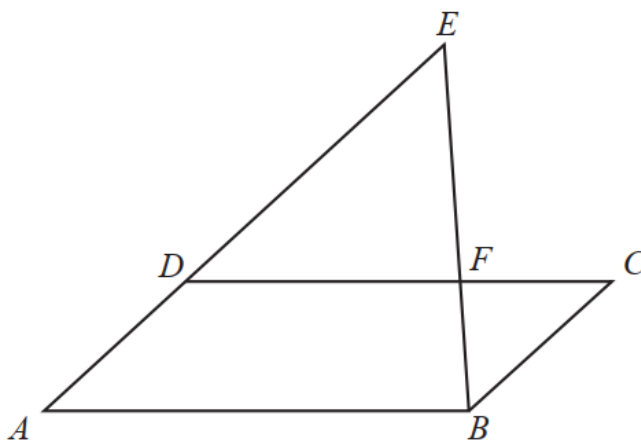
$$PR = 4.8 \text{ cm [2]}$$

- (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.

$$108 \text{ cm}^3 [2]$$

5.



NOT TO
SCALE

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

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

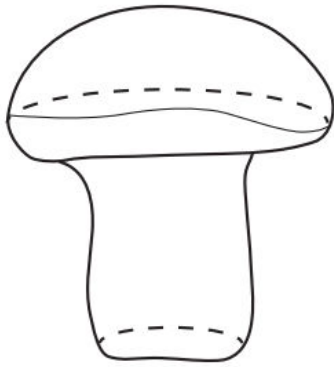
Any two of these statements
 $\angle EFD = \angle BFC$ (Vert. opposite $\angle$ s)
 $\angle EDF = \angle BCF$ (Alternate $\angle$ s)
 $\angle DEF = \angle CBF$ (Alternate $\angle$ s)
 AND 3 angles are equal, triangles are similar [2]

- (b) $BC = 4 \text{ cm}$, $DE = 5 \text{ cm}$ and $FB = 3 \text{ cm}$.

Find EF .

$$EF = 3\frac{3}{4} \text{ cm [2]}$$

6.



NOT TO
SCALE

The two solids are mathematically similar.

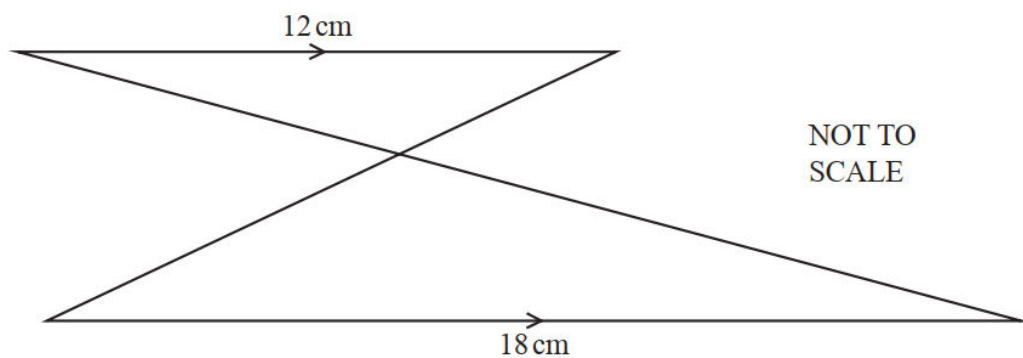
The larger solid has a volume of 64 cm^3 .

The smaller solid has a volume of 8 cm^3 and a height of 5 cm.

Work out the height of the larger solid.

..... **10** 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 **Similar** [1]

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

Calculate the area of the larger triangle.

..... **54** cm^2 [2]