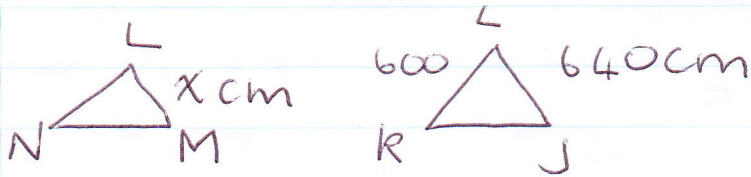
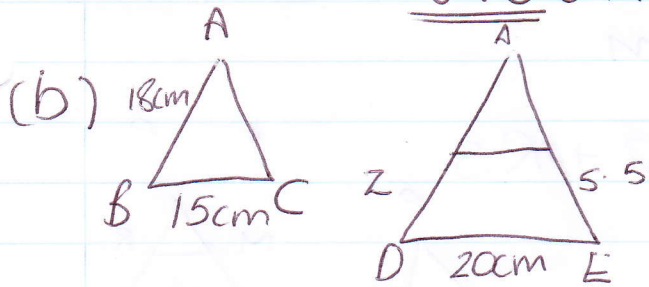


Similar Shapes w/work

Q1. $R.S.F = \frac{270}{720} = 0.375$



$$x \text{ cm} = 0.375 \times 640 \\ = \underline{\underline{240 \text{ cm}}}$$



$$R.S.F = \frac{15}{20} = \frac{3}{4} = \underline{\underline{0.75}}$$

$$E.S.F = \frac{20}{15} = \underline{\underline{1.333}}$$

$$AD = 1.333 \times 18 \\ = 24$$

$$z \text{ cm} = 24 - 18 \\ = \underline{\underline{6 \text{ cm}}}$$

(Tricky example)

$$\frac{4}{3}y = (5.5 + y)$$

$$y = \frac{3}{4}((5.5) + y)$$

$$y = \frac{3 \times 5.5}{4} + \frac{3y}{4}$$

$$y - \frac{3}{4}y = \frac{16.5}{4}$$

$$\frac{1}{4}y = \frac{4.125}{1}$$

$$y = \underline{\underline{16.5}}$$

Q2 long route $\Rightarrow 2 + 3 + MT + 3 \cdot 6$

$$PT = 2.5 \times 1.2 \\ = \underline{\underline{3}}$$

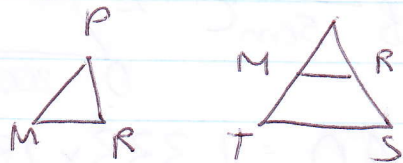
$$E.S.F. = \frac{3 \cdot 6}{3} = 1.2$$

$$MT = 3 - 2.5 \\ = \underline{\underline{0.5}}$$

$$\Rightarrow 2 + 3 + 0.5 + 3 \cdot 6 \\ \Rightarrow \underline{\underline{9.1 \text{ km}}}$$

Short Route $\Rightarrow 2 + R.S.$

$$PS = 2 \times 1.2^{(*)} \\ = \underline{\underline{2.4 \text{ km}}}$$



$$\text{longer by } \begin{array}{r} 3.1 \\ - 2.4 \\ \hline \underline{\underline{6.7 \text{ km}}} \end{array}$$

Q3 $R.S.F. = \frac{24}{30} = \frac{4}{5}$

$$\text{Vol R.S.F} = \left(\frac{4}{5}\right)^3 = 0.512$$

$$\text{Vol small jar} = 1.2 \times 0.512$$

$$= 0.6144 \text{ litres}$$

$$\Rightarrow \underline{\underline{0.61 \text{ litres (to 2 sf)}}}$$

Q4 $V = A \times h^{(*)}$
 $= 78.54 \times 14$

$$V = \underline{\underline{1099.56 \text{ cm}^3}}$$

$$(*) A = \pi \times (5)^2$$

$$= \pi \times 25$$

$$= \underline{\underline{78.54}}$$

(b) Holds 1099.56 mL. (depth = height)

$$600 \text{ mL} = 600 \text{ cm}^3$$

$$V = A \times h$$

$$600 = \pi r^2 \times h$$

$$600 = 78.54 \times h \rightarrow \text{from part A.}$$

$$h = \frac{V}{A}$$

$$h = \frac{600}{78.54}$$

$$h = \underline{\underline{7.64}} \text{ cm (depth)}$$