

Higher IGCSE wk 12 answers

1/ a, x scale factor = $\frac{4}{8} = \frac{1}{2}$ $\therefore x = \frac{1}{2} \times 10 = \underline{5\text{cm}}$
 y scale factor = $\frac{8}{4} = 2$ $\therefore y = 2 \times 2 = \underline{4\text{cm}}$

b/ $y = \frac{20}{16} \times 10 \Rightarrow \frac{5}{4} \times 10 = \underline{12.5\text{cm}}$

$x = \frac{4}{5} \times 15 = \underline{12\text{cm}}$

c/ $y = \frac{15}{35} \times 10.5 \Rightarrow \frac{3}{7} \times 10.5 = \underline{4.5\text{cm}}$

$x = \frac{7}{3} \times 12 = \underline{28\text{cm}}$

d/ $x = \frac{3}{8} \times 20 = \underline{7.5\text{cm}}$

2/ c/ LSF = 2 ASF = $(2)^2 = 4$

Area = $4 \times 3.75 = \underline{15\text{cm}^2}$

b/ LSF = $\frac{16}{24} = \frac{2}{3}$ ASF = $\frac{4}{9}$

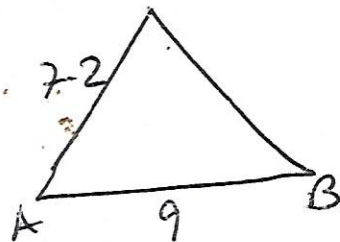
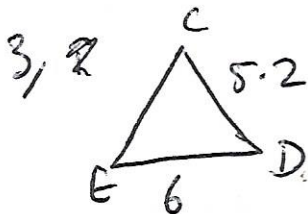
Area = $\frac{4}{9} \times 144 = \underline{64\text{cm}^2}$

c/ LSF = $\frac{14}{6} = \frac{7}{3}$ ASF = $\frac{49}{9}$

Area = $\frac{49}{9} \times 9 = \underline{49\text{cm}^2}$

d/ LSF = $\frac{4}{3}$ ASF = $\frac{16}{9}$

Area = $\frac{16}{9} \times 8.1 = \underline{14.4\text{cm}^2}$



a/ $BC = \frac{9}{6} \times 5.2 = \underline{7.8\text{cm}}$

b/ $CE = \frac{6}{9} \times 7.2 = \underline{4.8\text{cm}}$

c/ LSF = $\frac{3}{2}$

ASF = $\frac{9}{4}$

Area ABC = $\frac{9}{4} \times 10 = \underline{22.5\text{cm}^2}$

4/ SF = $\frac{8}{5}$ a/ length AD relates to length AC

$8 \times \frac{8}{5} = \underline{12.8\text{cm}}$

b/ ASF = $\frac{25}{64}$ Area ABC = $\frac{25}{64} \times 12.8 = \underline{5\text{cm}^2}$

5/ a/ LSF = $\frac{1}{2}$
VSF = $\frac{1}{8}$

Volume = $\frac{1}{8} \times 80 = \underline{10\text{cm}^3}$

b/ LSF = 3
VSF = 27

$V = 27 \times 20 = \underline{540\text{cm}^3}$

c/ LSF = $\frac{8}{6} = \frac{4}{3}$ Volume = $\frac{64}{27} \times \underline{2240\text{cm}^3}$

VSF = $\frac{64}{27}$

6/ a/ SF = $\frac{92}{23} = 4$

It = $2 \times 10 = \underline{20\text{cm}}$

b/ ASF = $\frac{96}{210} = \frac{4}{7}$

LSF = $\frac{2}{3}$ L = $\frac{2}{3} \times 12 = \underline{8\text{cm}}$

$$c/ VSF = \frac{216}{8} = 27$$

$$LSF = \sqrt[3]{27} = 3$$

$$H = 3 \times 8 = \underline{24cm}$$

$$d/ VSF = \frac{135}{320} = \frac{27}{64}$$

$$LSF = \frac{3}{4}$$

$$H = \frac{3}{4} \times 12 = \underline{9cm}$$

$$e/ VSF = \frac{187.5}{40.5} = \frac{125}{27}$$

$$LSF = \frac{5}{3}$$

$$H = \frac{5}{3} \times 6 = \underline{10cm}$$

$$7/ ASF = \frac{6}{2} = 3$$

$$ASF = 9$$

$$\text{Area of larger} = 9 \times 7 = \underline{63cm^2}$$

$$8/ VSF = \frac{377}{3016} = \frac{1}{8}$$

$$LSF = \sqrt[3]{\frac{1}{8}} = \frac{1}{2}$$

$$B's \text{ radius} = \frac{1}{2} \times 8 = \underline{4cm}$$

$$9/ ASF \ A \rightarrow B = \frac{240}{9.6} = 25$$

$$VSF = 5^3 = 125$$

$$LSF = \sqrt{25} = 5$$

$$\text{Volume of } B = 125 \times 43.2 = \underline{5400cm^3}$$

$$10/ VSF = \frac{8}{125}$$

$$C \rightarrow D$$

$$LSF = \sqrt[3]{\frac{8}{125}} = \frac{2}{5}$$

$$ASF = \frac{4}{25}$$

$$\text{Surface Area of } D = \frac{4}{25} \times 375 = \underline{60cm^2}$$

$$11/ ASF = \frac{540}{240} = \frac{9}{4}$$

$$VSF = \frac{27}{8}$$

$$LSF = \frac{3}{2}$$

$$\text{Volume of larger} = \frac{27}{8} \times 360 = \underline{1215cm^3}$$

$$12/ \text{Area SF smaller} \rightarrow \text{larger} = \frac{25}{4}$$

$$\text{Linear SF} = \frac{5}{2}$$

$$\therefore \text{Height of larger} = \frac{5}{2} \times 12 = \underline{30cm}$$

$$13/ ASF \text{ larger} \rightarrow \text{smaller} = \frac{16}{25}$$

$$LSF = \frac{4}{5}$$

$$VSF = \frac{64}{125}$$

$$\text{Volume of smaller} = \frac{64}{125} \times 1000 = \underline{512cm^3}$$

$$14/ SF = \frac{26}{6.5} = 4$$

$$\text{Height of house} = 4 \times 4 = \underline{16m}$$

$$15/ LSF = 100$$

$$\text{SA of } A = (100)^2 = 10000$$

$$a/ SA = 50 \times 10000 = 500,000cm^2$$

$$b/ \text{Conversion } 1m^2 = 10,000cm^2$$

$$\therefore SA \text{ of larger} = 10m^2$$

16/ a) Ratio of length AB : QP
11 : 27.5
1 : $\frac{5}{2}$

b) RQ relates to CB = $\frac{5}{2} \times 5 = \underline{12.5 \text{ cm}}$

c) CD = $\frac{2}{5} \times 42.5 = \underline{17 \text{ cm}}$

* remember h of small cone is $36 - 24 = 12$

17/ Radius of cut of cone is $\frac{12}{36} \times 6 = \underline{2 \text{ cm}}$

Volume of truncated cone = vol of large - vol of small
= $\frac{1}{3} \times \pi \times 6^2 \times 36 - \frac{1}{3} \times \pi \times 2^2 \times 12 \text{ cm}$
 $432\pi - 16\pi = 416\pi$
 $= 1310 \text{ cm}^3$