AREA AND VOLUME

Form 1

Vol 7

Part 4 – Height

1. Area of the parallelogram = $7.5 \times 8 = 60$ cm^2

   $10x = 60$

   $x = 6$

2. Let the height of ΔABE with respect to base BE be h cm.

   Area of $\Delta ABE = \dfrac{3 \times 4}{2} = 6$ cm^2

   $\dfrac{5 \times h}{2} = 6$

   $h = 2.4$

   Area of $BCDE$ = area of ΔABE

   $5(x - 2.4) = 6$

   $x = 3.6$

3. Area of $\Delta ACD = \dfrac{25 \times 3}{2} = 37.5$ cm^2

   $\dfrac{5(AB)}{2} = 37.5$

   $AB = 15$ cm

   Area of $\Delta ABD = \dfrac{(5+15) \times 15}{2} = 150$ cm^2

4. (a) $DC = AB = 25$ cm

   Area of $\Delta CDE = \dfrac{20 \times 15}{2} = 150$ cm^2

   $\dfrac{25(EF)}{2} = 150$

   $EF = 12$ cm

(b) Area of $ABCD = 10 \times 20 = 200\ \text{cm}^2$

$25 \times FG = 200$

$FG = 8$ cm

$EG = EF + FG = 20$ cm

Part 5 – Basic Volume

1. The volume $= \dfrac{(10+20)(8)}{2} \times 22 = 2640\ \text{cm}^3$

2. The volume $= (1 \times 5 + 3 \times 1 + 1 \times 1) \times 1 = 9\ \text{cm}^3$

3. The volume of the cuboid $= 120\ \text{cm}^3$

$3 \times 5 \times h = 120$

$h = 8$

4. (a) The volume $= \dfrac{(x+2x)h}{2} \times 4x = 6x^2h\ \text{cm}^3$

(b) The volume $= 84\ \text{cm}^3$

$6(2)^2h = 84$

$h = 3.5$

Part 6 – Hollow Prism

1. The volume $= (10 \times 10 - 7 \times 7) \times 6 = 306\ \text{cm}^3$

2. (a) The capacity $= (48 - 4 - 4) \times (30 - 4 - 4) \times (20 - 4) = 14080\ \text{cm}^3$

(b) The volume $= 48 \times 30 \times 20 - 14080 = 14720\ \text{cm}^3$

Part 7 – Melting Problem

1. Volume of the rectangular block $= \frac{3\times 4}{2}\times 6+6^3 = 252 \text{ cm}^3$

   $(4\times 6)x = 252$

   $x = 10.5$ cm

2. (a) The volume $= 6 \times 8 \times 4 = 192 \text{ cm}^3$

   (b) Let the number of blocks be n.

   Volume of the cube $= 12^3 = 1728 \text{ cm}^3$

   $192n = 1728$

   $n = 9$

   Thus, the number of iron blocks being melted is 9.

3. (a) Volume of I = Volume of II

   $x^3 = 18 \times 8 \times x$

   $x^2 = 144$

   $x = 12$

   (b) Volume of I = Volume of III

   $12^3 = \frac{(6+18)(8)}{2}\times y$

   $y = 18$