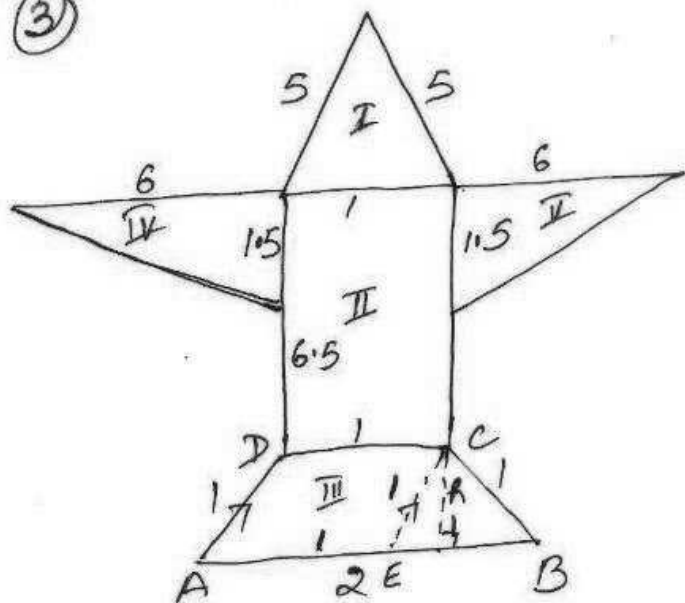


ex 12.2 Herons formula

(3)



const - draw  $CE \parallel DA$

Sol -  $\Delta I$

$$s = \frac{a+b+c}{2}$$

$$= \frac{1+5+5}{2}$$

$$= \frac{11}{2} \text{ units}$$

$$\text{area of } \Delta I = \sqrt{s(s-a)(s-b)(s-c)}$$

$$= \sqrt{\frac{11}{2} \left(\frac{11}{2} - 1\right) \left(\frac{11}{2} - 5\right) \left(\frac{11}{2} - 5\right)}$$

$$= \sqrt{\frac{11}{2} \times \frac{11-2}{2} \times \frac{11-10}{2} \times \frac{11-10}{2}}$$

$$= \sqrt{\frac{11}{2} \times \frac{9}{2} \times \frac{1}{2} \times \frac{1}{2}}$$

$$= \frac{\sqrt{11 \times 3 \times 3}}{2 \times 2}$$

$$= \frac{3}{4} \sqrt{11} \text{ sq units}$$

$$\text{area of rect II} = lb$$

$$= 6.5 \times 1$$

$$= 6.5 \text{ sq units}$$

$$\text{ar}(\Delta IV) = \frac{1}{2} bh$$

$$= \frac{1}{2} \times 6 \times 1.5$$

$$= 4.5 \text{ sq units}$$

$$\text{ar}(\Delta V) = \frac{1}{2} bh$$

$$= \frac{1}{2} \times 6 \times 1.5$$

$$= 4.5 \text{ sq units}$$

trap III

AECD is a trap  $\left[ \begin{array}{l} DC \parallel AB \\ CE \parallel AD \\ DA \end{array} \right]$

$$CE = DA = 1$$

$$AE = DC = 1$$

$$BE = AB - AE$$

$$= 2 - 1$$

$$= 1$$

$\therefore \Delta CEB$  is equilateral

$$h = \frac{\sqrt{3}}{2} \text{ Side}$$

$$= \frac{\sqrt{3}}{2} \times 1$$

$$= \frac{\sqrt{3}}{2} \text{ unit}$$

$$\text{area of trap} = \frac{1}{2} (b_1 + b_2) h$$

$$= \frac{1}{2} (1+2) \times \frac{\sqrt{3}}{2}$$

$$= \frac{3\sqrt{3}}{4} \text{ sq units}$$

$$\text{area of fig. } \frac{3\sqrt{11}}{4} + 6.5 + \frac{3\sqrt{3}}{4} + 4.5$$

$$= \frac{3\sqrt{11} + 3\sqrt{3} + 62}{4}$$

$$= \frac{3 \times 3.31 + 3 \times 1.73 + 62}{4}$$