$$\frac{ar(YAB)}{ar(YZX)} = \frac{\frac{1}{2} \times AB \times YQ}{\frac{1}{2} \times ZX \times YP}$$

$$= \frac{AB \times c}{2AB \times 2c} \quad [\because ZX = 2AB,\ YQ = c,\ YP = 2c]$$

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

$$\Rightarrow ar(YAB) = \frac{1}{4} ar(\triangle YZX)$$

$$= \frac{1}{4} \times \frac{1}{2} ar(\text{llgm } WXYZ)$$

[$\because$ diagonal divides a llgm into 2 $\triangle$s equal in area]

$$\Rightarrow ar(\triangle YAB) = \frac{1}{8} ar(\text{llgm } WXYZ) \quad \cdots (i)$$

$$ar(\triangle WXB) = \frac{1}{2} \times BX \times WR$$

$$= \frac{1}{2} \times \frac{1}{2} XY \times WR \quad [BX = \frac{1}{2} XY,\ \because B \text{ is midpt. of } XY]$$

$$\Rightarrow ar(\triangle WXB) = \frac{1}{4} ar(\text{llgm } WXYZ) \quad \cdots (ii)$$

Similarly $ar(\triangle WZA) = \frac{1}{4} ar(\text{llgm } WXYZ) \quad \cdots (iii)$

now

$$ar(\text{llgm } WXYZ) = ar(\triangle YAB) + ar(\triangle YZX) + ar(\triangle WXB) + ar(\triangle WAB)$$

$$= \frac{1}{8} ar(\text{llgm } WXYZ) + \frac{1}{4} ar(\text{llgm } WXYZ) + \frac{1}{4} ar(\text{llgm } WXYZ) + ar(\triangle WAB)$$

$$\Rightarrow ar(\triangle WAB) = ar(\text{llgm } WXYZ) - \frac{1}{4} ar(\text{llgm } WXYZ) - \frac{1}{4} ar(\text{llgm } WXYZ) - \frac{1}{8} ar(\text{llgm } WXYZ)$$

$$= \frac{8\,ar(\text{llgm } WXYZ) - 2\,ar(\text{llgm } WXYZ) \times 2 - ar(\text{llgm } WXYZ)}{8}$$

$$= \frac{3}{8} ar(\text{llgm } WXYZ)$$