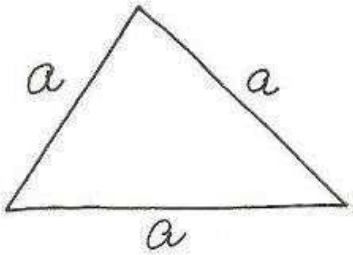
Herons formula IX

① 

Sol - $s = \frac{a+a+a}{2}$

$= \frac{3a}{2}$ units

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

$= \sqrt{\frac{3}{2}a\left(\frac{3}{2}a-\frac{a}{1}\right)\left(\frac{3}{2}a-\frac{a}{1}\right)\left(\frac{3}{2}a-\frac{a}{1}\right)}$

$= \sqrt{\frac{3}{2}a\left(\frac{3a-2a}{2}\right)\left(\frac{3a-2a}{2}\right)\left(\frac{3a-2a}{2}\right)}$

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

$= \frac{\sqrt{3}}{2\times2}a\times a$

$= \frac{\sqrt{3}}{4}a^2$ Sq. units

Per. of equi. $\triangle = 180$ cm

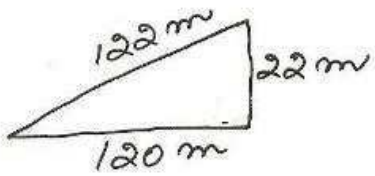
$3a = 180$

$\Rightarrow a = \frac{180}{3}$

$= 60$ cm

$\text{area} = \frac{\sqrt{3}}{4}\times60\times60$

$= 900\sqrt{3}$ cm^2

② 

area of wall

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

$= \frac{22+120+122}{2}$

$= \frac{264}{2}$

$= 132$ m

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

$= \sqrt{132(132-22)(132-120)(132-122)}$

$= \sqrt{132\times110\times12\times10}$

$= \sqrt{11\times12\times11\times10\times12\times10}$

$= 10\times11\times12$

$= 1320$ m^2

cost adv per Sq m per year

$= ₹5000$

cost of adv on wall for 1 year

$= ₹(1320\times5000)$

cost of adv on wall for 3 months $= \frac{1320\times5000}{12}\times3$

$= ₹16,50,000$