1. Let 2s be the perimeter of sengal board,

$2s = a+a+a = \frac{3a}{2}$

Let Δ be the area of the given equilateral triangle,

$\Rightarrow \Delta = \sqrt{s(s-a)(s-b)(s-c)}$

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

$\Rightarrow \Delta = \sqrt{\frac{3a}{2} \times \frac{a}{2} \times \frac{a}{2} \times \frac{a}{2}} = \frac{\sqrt{3a^4}}{\sqrt{16}} = \frac{\sqrt{3}a^2}{4}$

Perimeter = 180 cm

$2s = 180 \Rightarrow 3a = 180$

$\Rightarrow a = \frac{180}{3} = 60$

$\therefore \Delta = \frac{\sqrt{3}}{4} \times (60)^2 = \frac{\sqrt{3}}{4} \times 3600 = 900\sqrt{3}\ cm^2$

2. Length of the sides of the walls are 122 m, 22m and 120 m.

$122^2 = 120^2 m + 22^2 m$

Area of two walls $= 2 \times \left(\frac{1}{2} \times b \times h\right)$

$= 2 \times \left(\frac{1}{2} \times 60 \times 22\right) = 2 \times 1320$

$= 2640 m^2$

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Yearly rent = ₹5000 per m^2

Monthly rent = ₹$\left(\frac{5000}{12}\right)$ per m^2

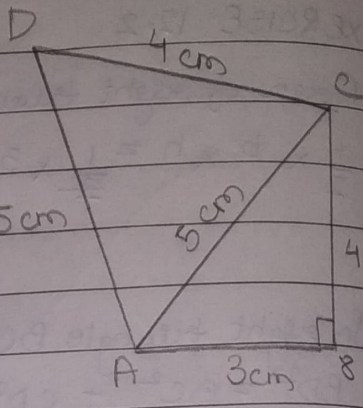
Rent paid by the company for 3 months = $\frac{5000}{12} \times 3 \times 220$

= ₹3,00,000 per m^2

2. In $\triangle ABC$,

$AB(a) = 3cm$, $BC(b) = 5cm$,

$AC(c) = 3cm$



$\therefore \triangle ABC$ is a right angled with

$\angle B = 90°$

Area of right angled triangle $ABC = \frac{1}{2} \times b \times h$

$= \frac{1}{2} \times 2 \times 4 = 4cm^2$

In $\triangle ACD$,

$a = 4cm$, $b = 5cm$, $c = 5cm$

$s = \frac{a+b+c}{2} = \frac{4+5+5}{2} = \frac{14}{2} = 7cm$

Area of the $\triangle ACD = \sqrt{s(s-a)(s-b)(s-c)}$

$= \sqrt{7(7-4)(7-5)(7-5)}$

$= \sqrt{7 \times 3 \times 2 \times 2} = 2\sqrt{21}\ cm^2$

$= 2 \times 4.6 = 9.2cm^2$

Area of quadrilateral ABCD = Area of $\triangle BCD$ + Area of $\triangle ACD$

$= 4cm^2 + 9.2cm^2 = 13.2cm^2$

4. $a = 26\,cm,\ b = 28\,cm,\ c = 30\,cm$

$$s = \frac{a+b+c}{2} = \frac{26+28+30}{2} = \frac{84}{2} = 42\,cm$$

Area of triangle $= \sqrt{s(s-a)(s-b)(s-c)}$

$$= \sqrt{42(42-26)(42-28)(42-30)}$$

$$= \sqrt{42 \times 16 \times 14 \times 12}$$

$$= \sqrt{(6\times7) \times 16 \times (7\times2) \times (6\times2)}$$

2

$= 6 \times 4 \times 7 \times 2 = 336\ cm^2$

Let the height of the parallelogram be h cm.

Area of the parallelogram = base × height

$= 28 \times h\ cm^2$

A/Q,

$28h = 336 \Rightarrow h = \frac{336}{28} \Rightarrow h = 12\ cm$

∴ The height of the parallelogram is 12 cm.