

3) The side of the wall are 15 m, 11 m and 6 m

$$\text{The Perimeter} = 15 + 11 + 6 \text{ m}$$

$$= 32 \text{ m}$$

$$\text{The Semi Perimeter} = \frac{32}{2}$$

$$= 16 \text{ m}$$

$$\text{The area that is painted} = \sqrt{s(s-a)(s-b)(s-c)} \text{ m}^2$$

$$= \sqrt{16(16-15)(16-11)(16-6)} \text{ m}^2$$

$$= \sqrt{16 \times 1 \times 5 \times 10} \text{ m}^2$$

$$= \sqrt{800} \text{ m}^2$$

$$= 20\sqrt{2} \text{ m}^2$$

4) The sides of the triangle are 18 cm, 10 cm and third side is unknown  $x$ .

So,

$$\text{Perimeter of the triangle} = 42 \text{ cm}$$

So,

$$\begin{aligned} \text{The length of the 3rd side} &= 18 + 10 + x = 42 \text{ cm} \\ \Rightarrow x &= 42 - 28 \text{ cm} \\ \Rightarrow x &= 14 \text{ cm} \end{aligned}$$

Hence,

$$\begin{aligned} \text{The semi Perimeter of the triangle} &= \frac{42}{2} \text{ cm} \\ &= 21 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Area of the triangle} &= \sqrt{s(s-a)(s-b)(s-c)} \text{ cm}^2 \\ &= \sqrt{21(21-18)(21-10)(21-14)} \text{ cm}^2 \\ &= \sqrt{21 \times 3 \times 11 \times 7} \text{ cm}^2 \\ &= \sqrt{4851} \text{ cm}^2 \\ &= 21\sqrt{11} \text{ cm}^2 \end{aligned}$$

5) The sides of the triangle are in the ratio of 12:17:25 and its perimeter is 540 cm. So, Let the sides be  $12x$ ,  $17x$  and  $25x$ .

$$\begin{aligned} \text{The length of the sides} &= 12x + 17x + 25x = 540 \text{ cm} \\ \Rightarrow 54x &= 540 \text{ cm} \Rightarrow x = \frac{540}{54} \text{ cm} \Rightarrow x = 10 \text{ cm} \end{aligned}$$

Hence,  $12x = 12 \times 10 = 120 \text{ cm}$ ,  $17x = 17 \times 10 = 170 \text{ cm}$  &  $25x = 25 \times 10 = 250 \text{ cm}$

$$\begin{aligned} \text{Semi Perimeter of the triangle} &= \frac{540}{2} \text{ cm} \\ &= 270 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Area of the triangle} &= \sqrt{s(s-a)(s-b)(s-c)} \text{ cm}^2 \\ &= \sqrt{270(270-250)(270-170)(270-120)} \text{ cm}^2 \\ &= \sqrt{270 \times 20 \times 100 \times 150} \text{ cm}^2 \\ &= \sqrt{81000000} \text{ cm}^2 \\ &= 9000 \text{ cm}^2 \end{aligned}$$

6) The sides of an isosceles triangle are 12 cm, 12 cm and third side is unknown so  $x$ . The Perimeter of the triangle is 30 cm.

Hence,

$$\begin{aligned} \text{The length of 3}^{\text{rd}} \text{ side} &= 30 - (12 + 12) \text{ cm} \\ &= 6 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Semi Perimeter of the triangle} &= \frac{30}{2} \text{ cm} \\ &= 15 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Area of the triangle} &= \sqrt{s(s-a)(s-b)(s-c)} \text{ cm}^2 \\ &= \sqrt{15(15-12)(15-12)(15-6)} \text{ cm}^2 \\ &= \sqrt{15 \times 3 \times 3 \times 9} \text{ cm}^2 \\ &= \sqrt{1215} \text{ cm}^2 \\ &= 9\sqrt{15} \text{ cm}^2 \end{aligned}$$