Exercise 7A

Question 18:

Let, a = 16 cm, b = 12 and c = 20 cm

Let us now find s :

$$s = \frac{1}{2}(a+b+c)$$

$$= \left(\frac{16+12+20}{2}\right)\text{cm} = \left(\frac{48}{2}\right)\text{ cm}$$

$$= 24 \text{ cm}$$

Area of one triangular tile $= \sqrt{s(s-a)(s-b)(s-c)}$

$$= \sqrt{24(24-16)(24-12)(24-20)}$$

$$= \sqrt{2\times2\times2\times2\times2\times2\times2\times2\times2\times3\times3}$$

$$= 2\times2\times2\times2\times2\times3$$

$$= 96\ \text{cm}^2$$

$\therefore$ Area of one tile $= 96\ \text{cm}^2$

$\Rightarrow$ Area of 16 tiles $= 96\times16 = 1536\ \text{cm}^2$

Cost of polishing the tiles per sq.cm = Re.1

Thus, the total cost of polishing all the tiles = Rs. (1×1536)

= Rs. 1536.

Question 19:

Consider the right triangle ABC.

By Pythagoras Theorem, we have,

$$BC = \sqrt{AB^2 - AC^2}$$

$$= \sqrt{17^2 - 15^2}$$

$$= \sqrt{289 - 225}$$

$$= \sqrt{64}$$

$$= 8 \text{ cm}$$

Perimeter of quad. ABCD = 17 + 9 + 12 + 8 = 46 cm

Area of triangle $\Delta ABC = \frac{1}{2}\times \text{base} \times \text{height}$

$$= \frac{1}{2}\times BC \times AC$$

$$= \frac{1}{2}\times 8 \times 15$$

$$= 60\ \text{cm}^2$$

For area of triangle ACD,

Let a = 15 cm, b = 12 cm and c = 9 cm

Therefore, $s = \frac{a+b+c}{2} = \frac{15+12+9}{2} = 18$ cm

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

$$= \sqrt{18(18-15)(18-12)(18-9)}$$

$$= \sqrt{18\times3\times6\times9}$$

$$= \sqrt{18\times18\times3\times3}$$

$$= 18\times3 = 54\ \text{cm}^2$$

Thus the area of quad. ABCD = Area of ΔABC + Area of ΔACD

$= 60 + 54 = 114\ \text{cm}^2$.

********** END **********