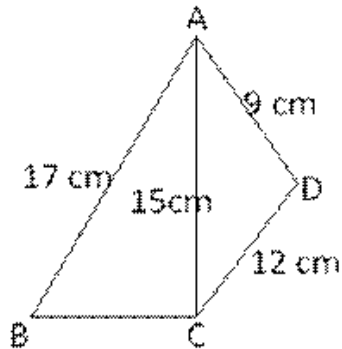




Exercise 17B

Question 27:



Area of quad. ABCD = Area of $\triangle ABC$ + Area of $\triangle ACD$

$$BC = \sqrt{17^2 - 15^2} \text{ cm} = \sqrt{289 - 225} = \sqrt{64} \text{ cm}$$

$$BC = 8 \text{ cm}$$

$$\begin{aligned} \text{Area of } \triangle ABC &= \left(\frac{1}{2} \times AC \times BC \right) \text{ cm}^2 \\ &= \left(\frac{1}{2} \times 15 \times 8 \right) \text{ cm}^2 = 60 \text{ cm}^2 \end{aligned}$$

Now, we find area of a $\triangle ACD$

$$a = 15 \text{ cm}, b = 12 \text{ cm and } c = 9 \text{ cm}$$

$$s = \frac{a+b+c}{2} = \frac{(15+12+9)}{2} = 18 \text{ cm}$$

$$(s-a) = 3 \text{ cm}, (s-b) = 6 \text{ cm and } (s-c) = 9 \text{ cm}$$

$$\begin{aligned} \text{Area of } \triangle ACD &= \sqrt{s \times (s-a)(s-b)(s-c)} \\ &= \sqrt{18 \times 3 \times 6 \times 9} \text{ cm}^2 \\ &= (18 \times 3) \text{ cm}^2 = 54 \text{ cm}^2 \end{aligned}$$

Area of quad. ABCD = Area of $\triangle ABC$ + Area of $\triangle ACD$

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

Perimeter of quad. ABCD = AB + BC + CD + AD

$$= (17 + 8 + 12 + 9) \text{ cm}$$

$$= 46 \text{ cm}$$

Perimeter of quad. ABCD = 46 cm

Question 28:

ABCD be the given quadrilateral in which AD = 24 cm, BD = 26 cm,

DC = 26 cm and BC = 26 cm

By Pythagoras theorem

$$AB = \sqrt{BD^2 - AD^2} = \sqrt{26^2 - 24^2} \text{ cm}$$

$$= \sqrt{100} \text{ cm} = 10 \text{ cm}$$

$$\text{Area of } \triangle ADB = \left(\frac{1}{2} \times AB \times AD \right) = \left(\frac{1}{2} \times 10 \times 24 \right) \text{ cm}^2$$

$$= 120 \text{ cm}^2$$

For area of equilateral $\triangle DBC$, we have
 $a = 26 \text{ cm}$

$$\text{Area of } \triangle DBC = \left[\frac{\sqrt{3}}{4} a^2 \right] \text{ sq. units}$$

$$= \left(\frac{\sqrt{3}}{4} \times 26 \times 26 \right) \text{ cm}^2 = (169\sqrt{3}) \text{ cm}^2$$

$$= (169 \times 1.73) \text{ cm}^2 = 292.73 \text{ cm}^2$$

Area of quad. ABCD = Area of $\triangle ABD$ + Area of $\triangle DBC$

$$= (120 + 292.73) \text{ cm}^2 = 412.73 \text{ cm}^2$$

Perimeter ABCD = AD + AB + BC + CD

$$= 24 \text{ cm} + 10 \text{ cm} + 26 \text{ cm} + 26 \text{ cm}$$

$$= 86 \text{ cm}$$

***** END *****