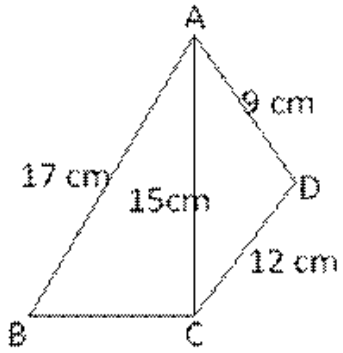
Exercise 17B

Question 27:




Area of quad. ABCD = Area of ΔABC + Area of ΔACD

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

$$BC = 8\ cm$$

$$\text{Area of } \Delta ABC = \left(\frac{1}{2} \times AC \times BC\right) cm^2$$

$$= \left(\frac{1}{2} \times 15 \times 8\right) cm^2 = 60\,cm^2$$

Now, we find area of a ΔACD

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

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

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

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

$$= \sqrt{18 \times 3 \times 6 \times 9}\ cm^2$$

$$= (18 \times 3) cm^2 = 54 cm^2$$

Area of quad. ABCD = Area of ΔABC + Area of ΔACD

= ( 60+54 ) $cm^2$ = 114 $cm^2$

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

=(17 + 8 + 12 + 9) cm

= 46 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

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

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

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

$$= 120\ cm^2$$

For area of equilateral $\Delta$DBC, we have
a = 26 cm

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

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

$$= \left(169 \times 1.73\right) cm^2 = 292.73 cm^2$$

Area of quad. ABCD = Area of $\Delta$ABD + Area of $\Delta$DBC
= (120 + 292.37) $cm^2$ = 412.37 $cm^2$
Perimeter ABCD = AD + AB + BC + CD
= 24 cm + 10 cm + 26 cm + 26 cm
= 86 cm

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