Exercise 17A

Question 17:
Let each side a = 13 cm and the base b = 20 cm

$$\therefore \text{ Area of triangle} = \left(\frac{1}{4}b.\sqrt{4a^2 - b^2}\right)cm^2$$

$$= \left(\frac{1}{4} \times 20 \times \sqrt{4 \times 169 - 20 \times 20}\right)cm^2$$

$$= (5 \times 16.61)cm^2 = 83.1cm^2$$

Hence, area of the triangle = 83.1 cm^2.

Question 18:
Let each equal side be a cm in length.
Then,

$$\frac{1}{2} \times a \times a = 200 \Rightarrow a = 20\ cm$$

$$\text{Hypotenuse } (h) = \sqrt{a^2 + a^2}\ cm$$

$$= a\sqrt{2}\ cm = 20\sqrt{2}\ cm$$

$$= (20 \times 1.414)\ cm = 28.28\ cm$$

$$\therefore \text{Perimeter of the triangle} = (2a = h)\ cm$$

$$= (2 \times 20 + 28.28)\ cm = 68.28\ cm$$

Hence, hypotenuse = 28.28 cm and perimeter = 68.28 cm

Question 19:
Let each equal side be a cm and base = 80 cm

$$\text{Area} = \frac{1}{4} b \times \sqrt{4a^2 - b^2} \text{ sq. units}$$

$$= \frac{1}{4} \times 80 \times \sqrt{4a^2 - 6400} \text{ cm}^2$$

$$= 20 \times \sqrt{4a^2 - 6400} \text{ cm}^2$$

But area $= 360 \text{cm}^2$

$\therefore 20\sqrt{4a^2 - 6400} = 360$

$\Rightarrow 20 \times 2\sqrt{a^2 - 1600} = 360$

$\Rightarrow \sqrt{a^2 - 1600} = 9$

$\Rightarrow a^2 - 1600 = 81$

$\Rightarrow a^2 = 1681$

$\Rightarrow a = 41 \text{ cm}$

perimeter of triangle = (2a + b) cm
= (2 ×41 + 80) cm
= (82 + 80) cm = 162 cm
Hence, perimeter of the triangle = 162 cm

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