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SUBJECT : Workshop Calculation & Science

Date: 7th July, 2020 Time : 11.20 am to 12.00pm.

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Answer The following Questions :

1) Find out area of triangle whose base is 19cm and altitude is 17.5cm.
2) Right angle triangle has its base side 60mm and height 75mm. Find its area.
3) Find the area of isosceles triangle whose base is 6mm & length of other two sides is 5cm each.
4) The area of rectangular sheet is 48 sq.cm if the length is reduced by 2cm it becomes a square sheet . Find length and breadth of rectangular sheet.
5) Find the area and perimeter of rectangle whose length and breadth are 20cm and 8 cm respectively.

Example 4. Find out area of triangle whose base is 19 cm and altitude is 17.5 cm.

Solution : Area of $\Delta = \frac{1}{2} \times$ base $\times$ altitude

$= \frac{1}{2} \times 19 \times 17.5 = 166.25$ sq cm **Ans.**

Example 5. Find out the area of an equilateral triangle has each of its sides 60 mm long.

(NCVT - 1995 Fitter, Turner, Machinist)

Solution : Area of equilateral triangle $= \frac{\sqrt{3}}{4} \times \text{side}^2$

$= 0.433 \times 60^2$

$= 0.433 \times 3600$

$= 1558.8 \text{ mm}^2$

$= 15.588 \text{ cm}^2$ **Ans.**

Example 6. Right angle triangle has its base side 60 mm and height 75 mm. Find its area.

Solution :

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

$= \frac{1}{2} \times 60 \times 75 = 2250 \text{ mm}^2$

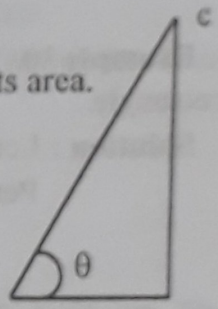

Fig. 28

Example 7. Find the area of isosceles triangle whose base is 6 cm and length of other two sides is 5 cm each.

Solution : $S = \frac{1}{2}(a+b+c)$

$= \frac{1}{2}(6+5+5)$

$= \frac{1}{2}(16) = 8$

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

$= \sqrt{8(8-6)(8-5)(8-5)} = \sqrt{144}$

$= 12 \text{ cm}^2$ **Ans.**

Example 8. The area of rectangular sheet is 48 sq. cm if the length is reduced by 2cm it becomes a square sheet. Find length and breadth of rectangular sheet.

Solution : Let the length of sheet $= a$ cm

Let the breadth of sheet $= b$ cm

Area of sheet $= 48$ sq. cm

Now in square $a - 2 = b$

$ab = 48$ sq. cm ...(i)

From equations (i) and (ii) ....(ii)

$$b + 2 = \frac{48}{b}$$

$$b^2 + 2b - 48 = 0$$

$$(b + 8)(b - 6) = 0$$

$$b = -8 \text{ or } 6$$

$$a = 8$$

$a = 8$ cm, $b = 6$ cm **Ans.**

Example 9. Find the area and perimeter of rectangle whose length and breadth are 20cm and 8cm repetitively.

Solution : Area of rectangle = length × breadth

$= 20 \times 8 = 160$ sq. cm

Perimeter of rectangle $= 2$ (length + breadth)

$= 2(20 + 8)$

$= 56$ cm **Ans.**