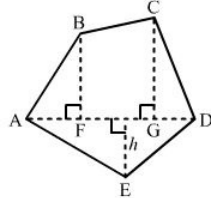




Mensuration-I area of a trapezium and a polygon Ex 20.3 Q1

Answer :

The given figure is:



Given:

$AD = 10 \text{ cm}$, $AG = 8 \text{ cm}$, $AH = 6 \text{ cm}$, $AF = 5 \text{ cm}$

$BF = 5 \text{ cm}$, $CG = 7 \text{ cm}$, $EH = 3 \text{ cm}$

$\therefore FG = AG - AF = 8 - 5 = 3 \text{ cm}$

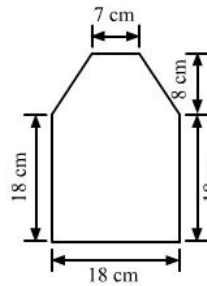
And, $GD = AD - AG = 10 - 8 = 2 \text{ cm}$

From given figure:

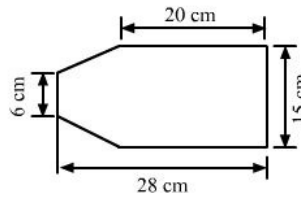
Area of Pentagon = (Area of triangle AFB) + (Area of trapezium FBCG) + (Area of triangle CGD)

Mensuration-I area of a trapezium and a polygon Ex 20.3 Q2

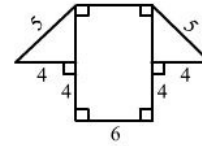
Answer :



(i)



(ii)



(iii)

(i)

The given figure can be divided into a rectangle and a trapezium as shown below:

From the above figure:

Area of the complete figure = (Area of square ABCF) + (Area of trapezium CDEF)

$= (AB \times BC) + \left[\frac{1}{2} \times (FC + ED) \times (\text{Distance between FC and ED}) \right]$

$= (18 \times 18) + \left[\frac{1}{2} \times (18 + 7) \times (8) \right]$

$= 324 + 100$

$$=424 \text{ cm}^2$$

(ii)

The given figure can be divided in the following manner:

From the above figure:

$$AB = AC - BC = 28 - 20 = 8 \text{ cm}$$

So that area of the complete figure = (area of rectangle BCDE) + (area of trapezium ABEI)

$$= (BC \times CD) + \left[\frac{1}{2} \times (BE + AF) \times (AB) \right]$$

$$= (20 \times 15) + \left[\frac{1}{2} \times (15 + 6) \times (8) \right]$$

$$= 300 + 84$$

$$= 384 \text{ cm}^2$$

(iii)

The given figure can be divided in the following manner:

From the above figure:

$$EF = AB = 6 \text{ cm}$$

Now, using the Pythagoras theorem in the right angle triangle CDE:

$$5^2 = 4^2 + CE^2$$

$$CE^2 = 25 - 16 = 9$$

$$CE = \sqrt{9} = 3 \text{ cm}$$

$$\text{And, } GD = GH + HC + CD = 4 + 6 + 4 = 14 \text{ cm}$$

∴ Area of the complete figure = (Area of rectangle ABCH) + (Area of trapezium GDEF)

$$= (AB \times BC) + \left[\frac{1}{2} \times (GD + EF) \times (CE) \right]$$

$$= (6 \times 4) + \left[\frac{1}{2} \times (14 + 6) \times (3) \right]$$

$$= 24 + 30$$

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

***** END *****