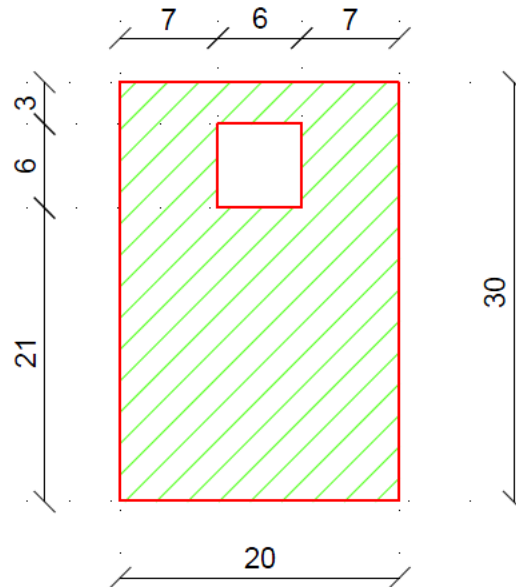


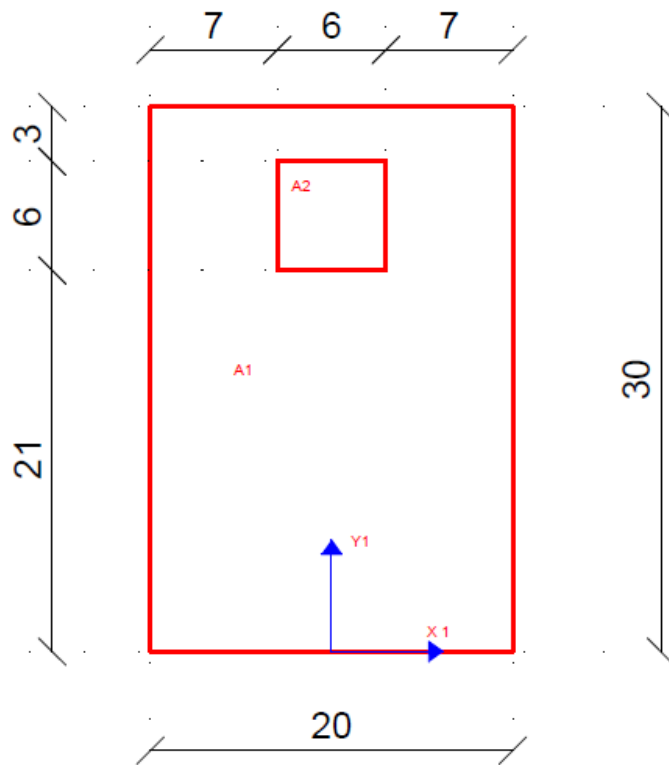
Problem 3

Determine the location of centroid of the given area



SOL.

- 1- Assume x and y axis
- 2- Divide the area to areas with simple shape



3- Find area properties

$$A_1 = 20 \times 30 = 600 \text{ cm}^2$$

$$A_2 = 6 \times 6 = 36 \text{ cm}^2$$

$$A_t = 600 - 36 = 564 \text{ cm}^2$$

$$y_1 = 15 \text{ cm}$$

$$y_2 = 21 + \frac{6}{2} = 24 \text{ cm}$$

From the symmetry of the shape about y axis $\Rightarrow \bar{x} = 0$

$$\bar{y} = \frac{\sum A_i y_i}{\sum A_i} = \frac{600 \times 15 - 36 \times 24}{564} = 14.426 \text{ cm}$$

