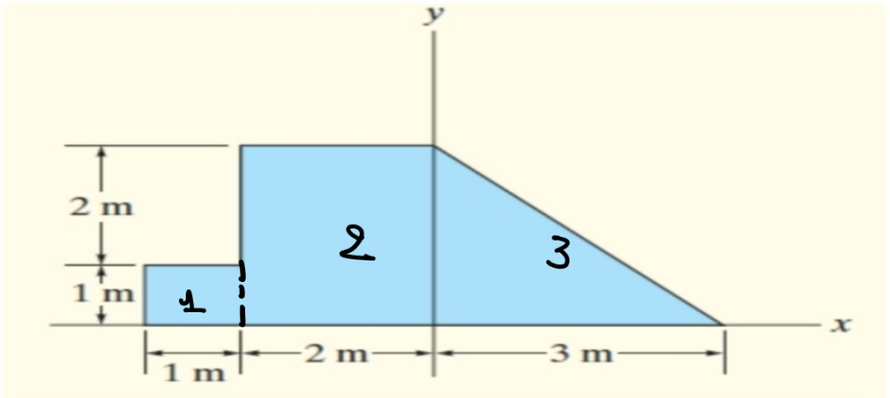
Problem5 : (Composite Area)

Locate the centroid ($\bar{x}$, $\bar{y}$) of the plate area shown in Fig.



elements	x_i	y_i	A_i
1	-2,5	0,5	1
2	-1	1,5	6
3	1	1	4,5

$$\bar{X} = \frac{x_1 \cdot A_1 + x_2 \cdot A_2 + x_3 \cdot A_3}{A_1 + A_2 + A_3}$$

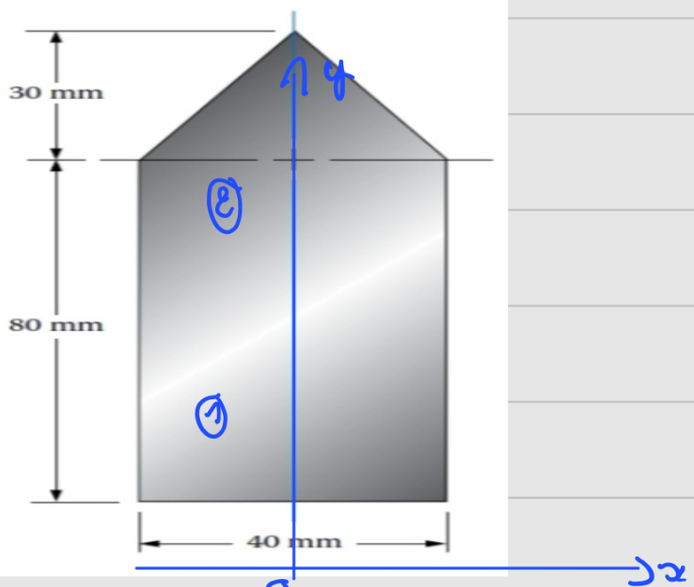
$$= \frac{-2,5 \times 1 - 1 \times 6 + 1 \times 4,5}{1 + 6 + 4,5}$$

$$\boxed{\bar{X} = 0,35 \text{ m}}$$

$$\boxed{\bar{Y} = 1,22 \text{ m}}$$

Problem 6 : (Composite Area)

Locate the centroid ($\bar{x}$, $\bar{y}$) of the plate area shown in Fig.



(oy) est un axe de symétrie $\Rightarrow \bar{X} = 0$

	x_i	y_i	A_i
①	0	40	3200
②	0	90	600

$$y_2 = \frac{R}{3} + 80 = \frac{30}{3} + 80 = 90$$

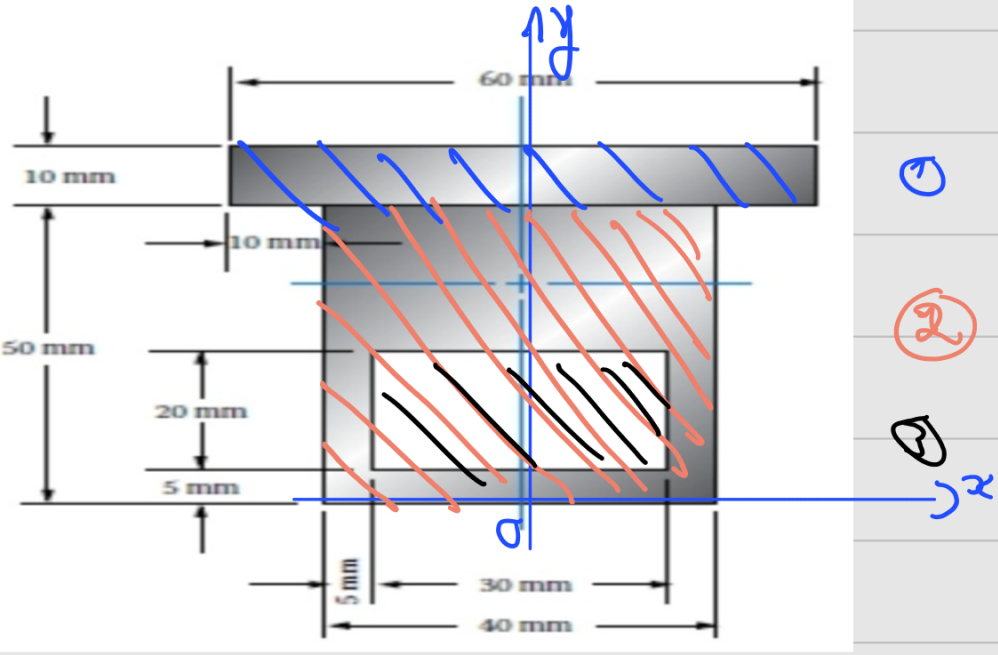
Exo2

$$\bar{y} = \frac{40 \times 3200 + 90 \times 600}{3200 + 600}$$

$$\boxed{\bar{y} = 47,89 \text{ mm}}$$

Problem 7 : (Composite Area)

Locate the centroid ($\bar{x}$, $\bar{y}$) of the plate area shown in Fig.



(oy) est un axe de symétrie $\Rightarrow \bar{X} = 0$

	x_i	y_i	A_i
①	0	55	600
②	0	25	2000
③	0	15	−600

$$y_G = \frac{55 \times 600 + 25 \times 2000 - 600 \times 15}{600 - 600 + 2000}$$

$$y_G = 37 \text{ mm}$$