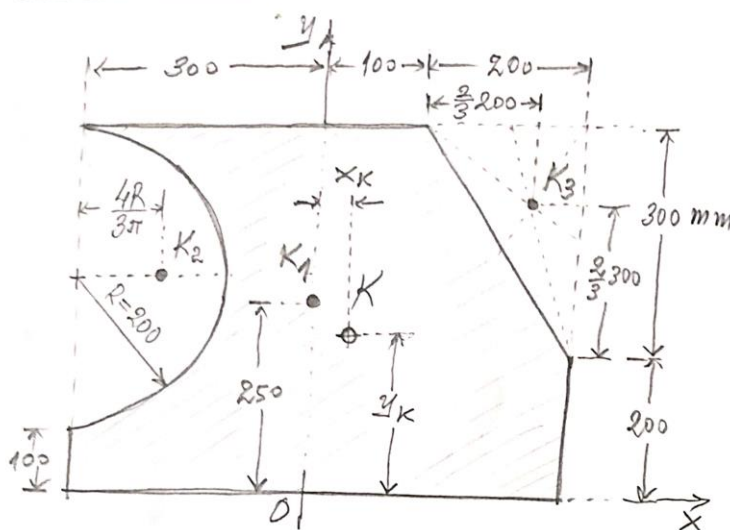


5) Κέντρο μάζας της κάτω σελίδας (ή διαγράμμι γράφημα) εργασίας



$$(11): \quad x_K = \frac{\sum x_{K_i} A_i}{\sum A_i} \quad (5.1)$$

$$y_K = \frac{\sum y_{K_i} A_i}{\sum A_i} \quad (5.2)$$

- $x_{K_i}, y_{K_i}$  με τα πρόσημα του  $\text{ροότυ}$ !
- Εάν  $A_i$  "λείπει", τότε με (-)!

$$A_1 = 600 \times 500 = 300 \cdot 10^3 \text{ mm}^2$$

$$x_{K_1} = 0 \text{ mm (συμπίπτει)}, \quad y_{K_1} = 250 \text{ mm} \quad \left. \vphantom{A_1} \right\} (5.3)$$

$$A_2 = -\frac{\pi R^2}{2} = -62.83 \cdot 10^3 \text{ mm}^2$$

$$x_{K_2} = -\left(300 - \frac{4R}{3\pi}\right) = -215.12 \text{ mm}, \quad y_{K_2} = 300 \text{ mm} \quad \left. \vphantom{A_2} \right\} (5.4)$$

$$A_3 = -\frac{200 \cdot 300}{2} = -30 \cdot 10^3 \text{ mm}^2$$

$$x_{K_3} = 100 + \frac{2}{3} \cdot 200 = 233.33 \text{ mm}, \quad y_{K_3} = 200 + \frac{2}{3} \cdot 300 = 400 \text{ mm} \quad \left. \vphantom{A_3} \right\} (5.5)$$

(5.1), (5.3), (5.4), (5.5)  $\Rightarrow$

$$\boxed{x_K} = \frac{0 \cdot (300 \cdot 10^3) + (-215.12) \cdot (-62.83 \cdot 10^3) + 233.33 \cdot (-30 \cdot 10^3)}{300 \cdot 10^3 + (-62.83 \cdot 10^3) + (-30 \cdot 10^3)} = \boxed{31.45 \text{ mm}}$$

(5.2), (5.3), (5.4), (5.5)  $\Rightarrow$

$$\boxed{y_K} = \frac{250 \cdot (300 \cdot 10^3) + 300 \cdot (-62.83 \cdot 10^3) + 400 \cdot (-30 \cdot 10^3)}{300 \cdot 10^3 + (-62.83 \cdot 10^3) + (-30 \cdot 10^3)} = \boxed{213.11 \text{ mm}}$$