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Espinosa

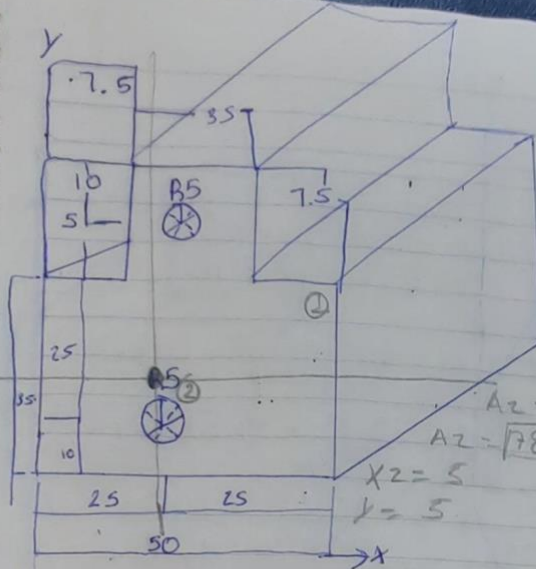
**Nombre del profesor:** Pedro Alberto  
García

**Nombre del trabajo:** Examen 2da  
unidad

**Materia:** Estática Para La Arquitectura

**Grado:** 2do

**Grupo:** “A”



$$A_1 = 50(35) = 2500$$

$$x_1 = 50/2 \quad x_1 = 25$$

$$y_1 = 35/2 \quad y_1 = 17.5$$

$$A_2 = 3.1416(5)^2 \quad A_2 = 3.1416(25)$$

$$A_2 = 78.54$$

$$x_2 = 5$$

$$y_2 = 5$$

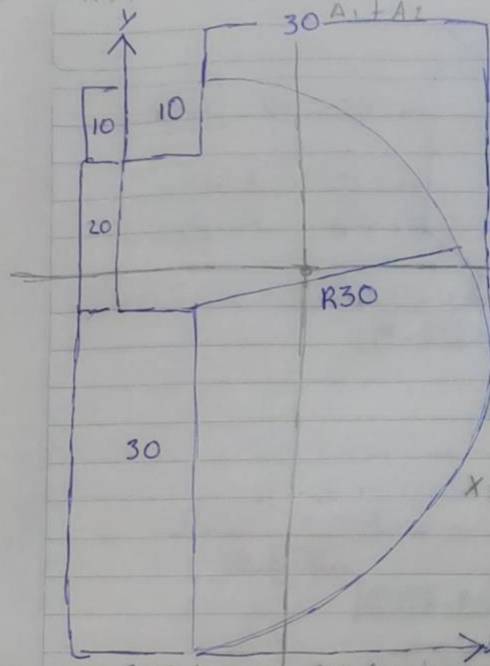
$$CEX = \frac{2500(25) + 78.54(5)}{2500 + 78.54} = \frac{62,500 + 392.7}{2578.54}$$

$$CEX = \frac{62,892.7}{2578.54} \quad CEX = 24.3908$$

$$CEY = \frac{2500(17.5) + 78.54(5)}{2500 + 78.54} \quad CEY = \frac{43,750 + 392.7}{2578.54}$$

$$CEY = \frac{44,142.7}{2578.54} \quad CEY = 17.1192$$

$$E_x Y A = C E_x = A_1 \cdot X_1 + A_2 \cdot X_2$$



$$A_1 = 20(10) \quad A_1 = 200 \text{ cm}^2$$

$$X_1 = 10/2 \quad X_1 = 5 \text{ cm}$$

$$Y_1 = 20/2 \quad Y_1 = 10$$

$$A_2 = \frac{3.1416(30)^2}{4} = \frac{3.1416(900)}{4}$$

$$A_2 = \frac{2,827.44}{4} \quad A_2 = 706.86$$

$$X = X_c = \frac{4(30)}{3(3.1416)} = \frac{120}{9.4248}$$

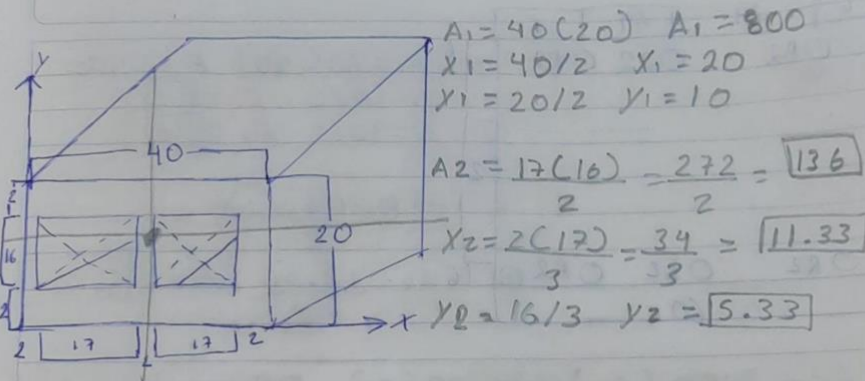
$$X_c = 12.723$$

$$C E_x = \frac{200(5) + 706.86(12.723)}{200 + 706.86} = \frac{9604.119}{906.86} = 10.5972$$

$$X = \frac{E_x A}{EA} = \frac{A_1 \cdot X_1 + A_2 \cdot X_2}{A_1 + A_2}$$

$$Y = \frac{200(10) + 706.86(12.723)}{200 + 706.86} = \frac{2000 + 8604.119}{906.86}$$

$$Y = \frac{10,604.119}{906.86} = 11.6932$$



$$A_1 = 40(20) \quad A_1 = 800$$

$$x_1 = 40/2 \quad x_1 = 20$$

$$y_1 = 20/2 \quad y_1 = 10$$

$$A_2 = \frac{17(16)}{2} = \frac{272}{2} = \boxed{136}$$

$$x_2 = \frac{2(17)}{3} = \frac{34}{3} = \boxed{11.33}$$

$$y_2 = 16/3 \quad y_2 = \boxed{5.33}$$

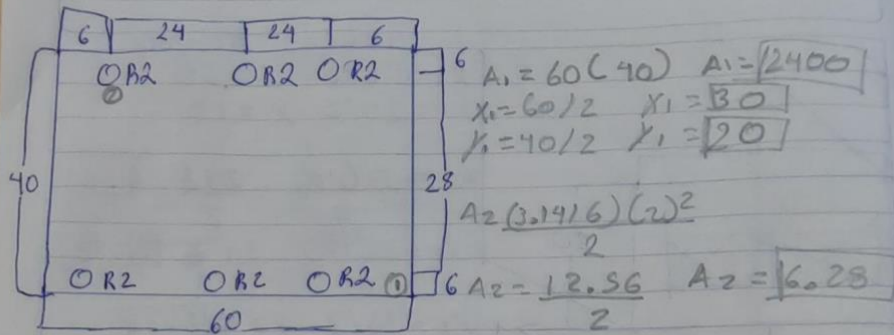
$$C_{EX} = \frac{800(20) + 136(11.33)}{800 + 136} \quad C_{EX} = \frac{16000 + 1540.88}{936}$$

$$C_{EX} = \frac{17540.88}{936} = \boxed{18.74}$$

$$C_{EY} = \frac{800(20) + 136(5.33)}{800 + 136} = \frac{16000 + 724.88}{936}$$

$$C_{EY} = \frac{16724.88}{936} \quad C_{EY} = \boxed{17.86}$$





$$CEX = \frac{2400(30) + 16.28(2)}{2400 + 6.28} = \frac{72,000 + 32.56}{2406.28}$$

$$CEX = \frac{72,032.56}{2406.28} \quad CEX = 29.93$$

$$CEY = \frac{2400(20) + 6.28(2)}{2406.28} \quad CEY = \frac{48,000 + 12.56}{2406.28}$$

$$CEY = \frac{48,012.56}{2406.28} \quad CEY = 19.95$$