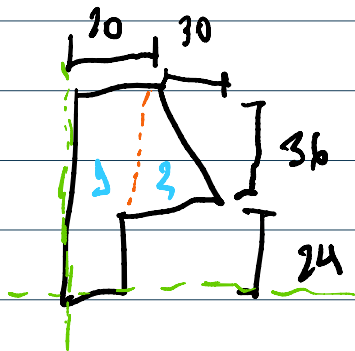


WAS UMA

S.6)

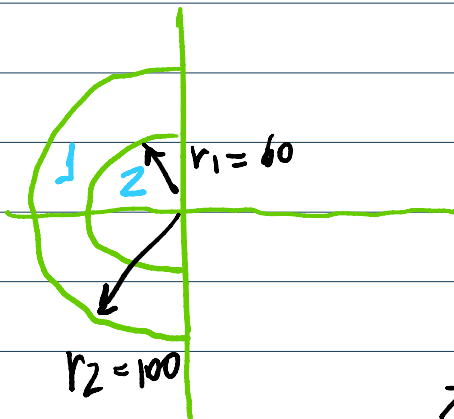


	\bar{x}	\bar{y}	A	$A\bar{x}$	$A\bar{y}$
1	15	30	1200	18000	36000
2	30	36	540	16200	19440
			<u>1740</u>	<u>28200</u>	<u>55440</u>

$$x_c = \frac{28200}{1740} \approx 16,206 \text{ mm}$$

$$y_c = \frac{55440}{1740} \approx 31,86 \text{ mm}$$

S.20



	\bar{x}	\bar{y}	A
1	$\frac{4r_2}{3\pi}$	0	$\frac{\pi r_2^2}{4}$
-2	$\frac{4r_1}{3\pi}$	0	$\frac{\pi r_1^2}{4}$

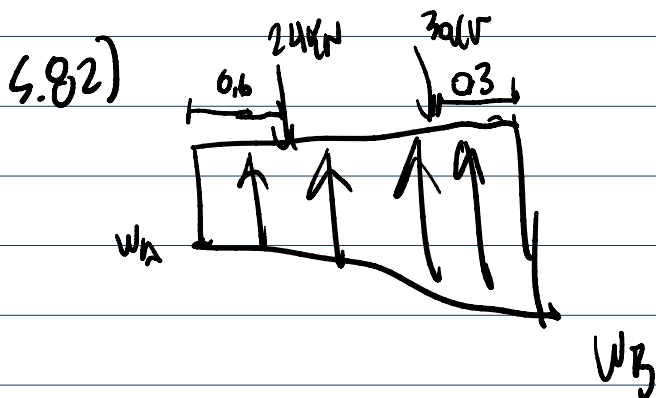
$$x_c = \frac{\frac{\pi r_2^2}{4} \cdot \frac{4r_2}{3\pi} - \frac{\pi r_1^2}{4} \cdot \frac{4r_1}{3\pi}}{\frac{\pi r_2^2}{4} - \frac{\pi r_1^2}{4}}$$

$$x_c = \frac{\frac{r_2^3}{3} - \frac{r_1^3}{3}}{\frac{\pi}{4}(r_2^2 - r_1^2)} = \frac{1}{3} \frac{(r_2^3 - r_1^3)}{\frac{\pi}{4}(r_2^2 - r_1^2)}$$

$$\frac{1}{3} \cdot (r_2^3 - r_1^3) \cdot \frac{4}{\pi} \left(\frac{1}{r_2^2} - \frac{1}{r_1^2} \right)$$

$$- \frac{4}{3\pi} \frac{(r_2^3 - r_1^3)}{r_2^2 - r_1^2} = - \frac{4}{3\pi} \frac{r_2^2 + r_2 r_1 + r_1^2}{r_2 + r_1}$$

$$\bar{x} \rightarrow - \frac{4}{3\pi} \cdot \frac{3r^2}{2r} = \left[\frac{2r}{\pi} \right]$$



$$F_R = -24 - 30 = -54 \text{ kN}$$

$$M_A = -0.6 \cdot 24 - 1.5 \cdot 30 = -59.4$$

$$F_0 = 1.8 W_A + 0.9 (W_B - W_A)$$

$$\bar{x} = 0.4 \cdot 1.8 W_A + 1.2 \cdot 0.9 (W_B - W_A)$$

$$1.8 W_A + 0.4 (W_B - W_A)$$

Logo por

$$\begin{cases} \bar{x}_0 F_0 = 59.4 \\ F_0 = 54 \end{cases}$$

$$\begin{cases} 1.62 W_A + 1.08 (W_B - W_A) = 59.4 \\ 1.8 W_A + 0.9 (W_B - W_A) = 54 \end{cases}$$

Resolviendo: $W_A = 10 \text{ kN/m}$

$$W_B = 50 \text{ kN/m}$$

$$5.86) a) P_1 = P_{\min} \cdot 1,5/2 = 0,775$$

$$(0; 1,4)$$

$$P_2 = P_{\max} \cdot 1,5/2 = 0,95 \cdot 1,5$$

$$(0; 1,9)$$

$$C = \frac{(0; 1,4) \cdot 1,605i + (0; 1,9) \cdot 1,975i}{2,475}$$

$$C = (0; 1,69) \text{ m}$$

$$b) 0 = \vec{AC} \times 2,475i - 1,5j \times \vec{F}$$

$$0 = -0,465x + 1,5F_x i$$

$$F_x = 0,31 \text{ N}$$