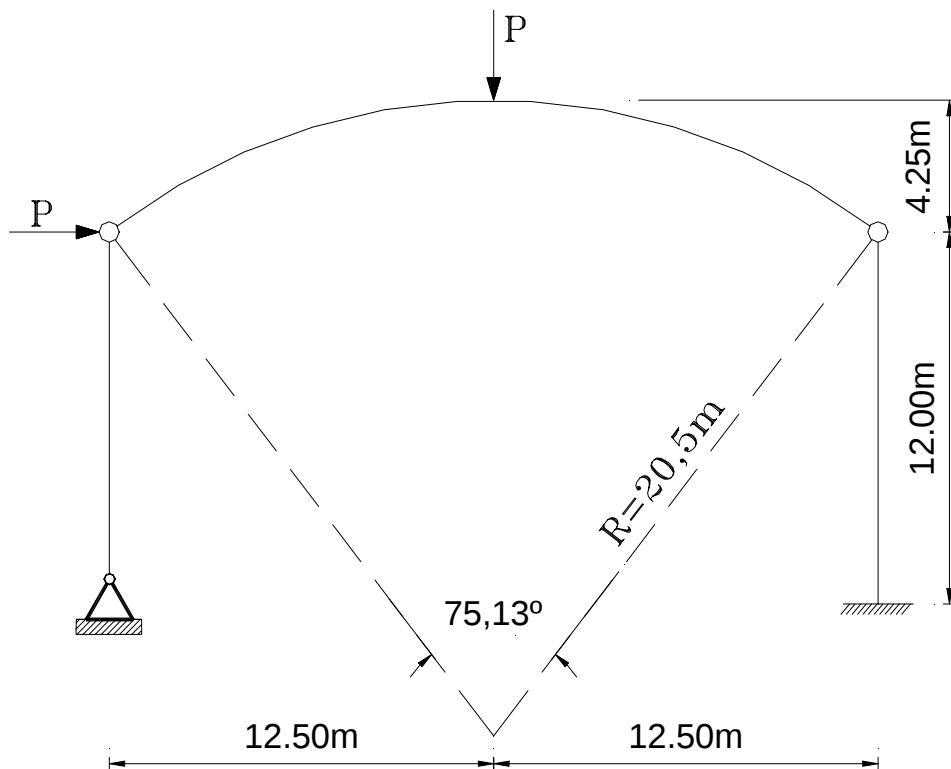
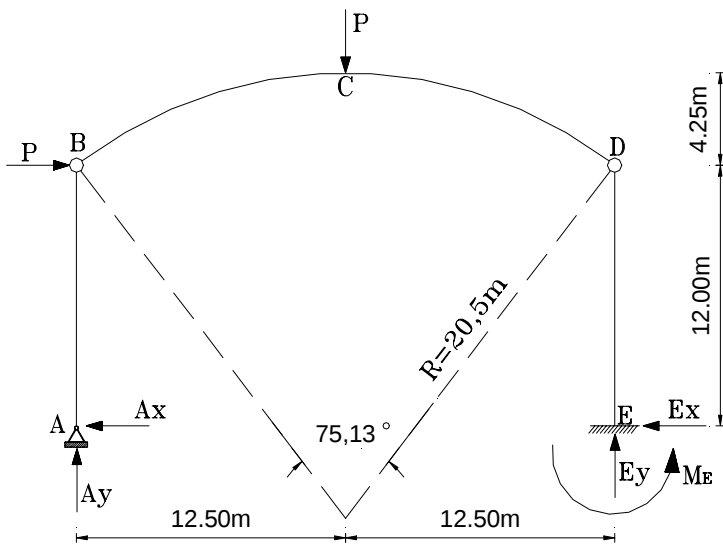


EJERCICIO N° 3 – G1

Para la estructura que se muestra, dibujar los diagramas de esfuerzos (Axil, cortante y Momento flector), indicando sus valores en los puntos más significativos.



SOLUCION



$$\Sigma M_A = 0$$

$$-12P - 12,5P + 25E_y + M_E = 0$$

$$25E_y + M_E = 24,5P \quad (1)$$

$$\Sigma M_E = 0$$

$$-25A_y - 12P + 12,5P + M_E = 0$$

$$25A_y - M_E = 0,5P \quad (2)$$

$$\Sigma F_x = 0$$

$$A_x + E_x = P \quad (3)$$

$$\Sigma M_{izqB} = 0$$

$$12A_x = 0 \quad (4) \Rightarrow \boxed{A_x = 0} ; \boxed{E_x = P}$$

$$\Sigma M_{derD} = 0$$

$$M_E - 12E_x = 0 \quad (5) \Rightarrow \boxed{M_E = 12P}$$

De (1)

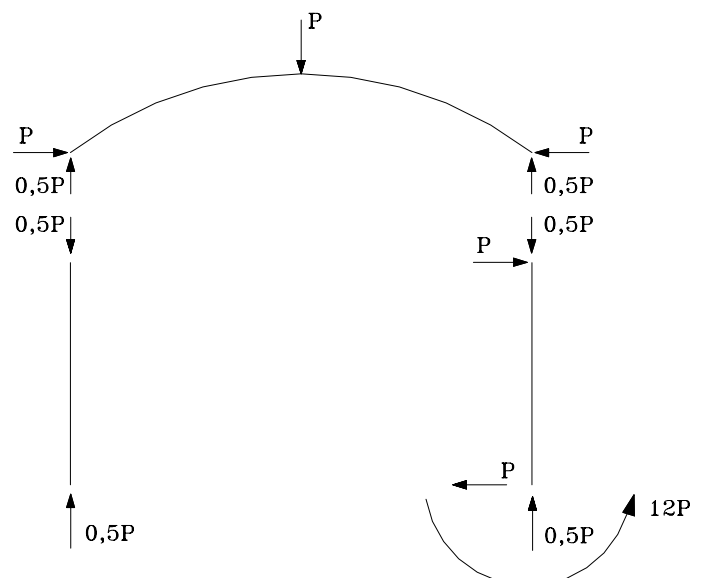
$$25E_y + 12P = 24,5P$$

$$\Rightarrow \boxed{E_y = \frac{12,5P}{25} = 0,5P}$$

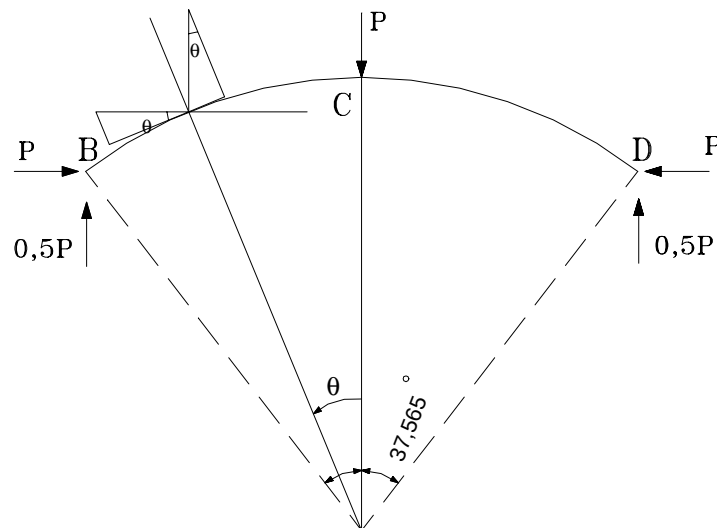
De (2)

$$25A_y - 12P = 0,5P$$

$$\Rightarrow \boxed{A_y = 0,5P}$$



TRAMO	N	Q	M
AB	0,5P	-	-
BC	$-P\cos\theta - 0,5P\sin\theta$ $-P(\cos\theta + 0,5\sin\theta)$ $\begin{cases} N_{(37,565)} = -1,1P \\ N_{(0)} = -P \end{cases}$	$-P\sin\theta + 0,5P\cos\theta$ $= -P(0,5\cos\theta - \sin\theta)$ $\begin{cases} Q_{(37,565)} = -0,21P \\ \theta_{(0)} = 0,5P \end{cases}$	$0,5PR(0,61 + \sin\theta) +$ $-PR(\cos\theta - 0,79)$ $= 1,095PR - 0,5PR\sin\theta - PR\cos\theta$ $= PR(1,095 - 0,5\sin\theta - \cos\theta)$ $\begin{cases} M_{(37,565)} = 0 \\ M_{(0)} = 0,095PR \\ M_{(18,78)} = \end{cases}$
CD	SIMETRICO	ANTIMETRICO	SIMETRICO
DE	0,5P	P	PX



$$y = R\cos\theta - R\cos(37,565^\circ)$$

 $\Rightarrow$

$$y = R(\cos\theta - 0,79)$$

$$x = R(\sin(37,565^\circ) - \sin\theta)$$

 $\Rightarrow$

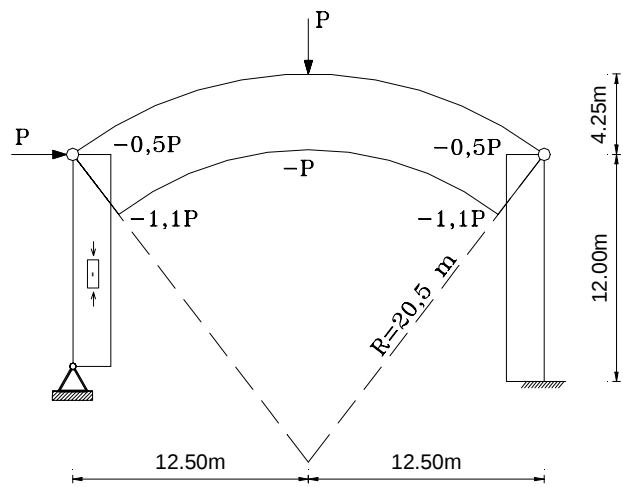
$$x = R(0,61 - \sin\theta)$$

$$M_F = 0,5PR(\sin(37,565^\circ) - \sin\theta) - PR(\cos\theta - \cos(37,565^\circ))$$

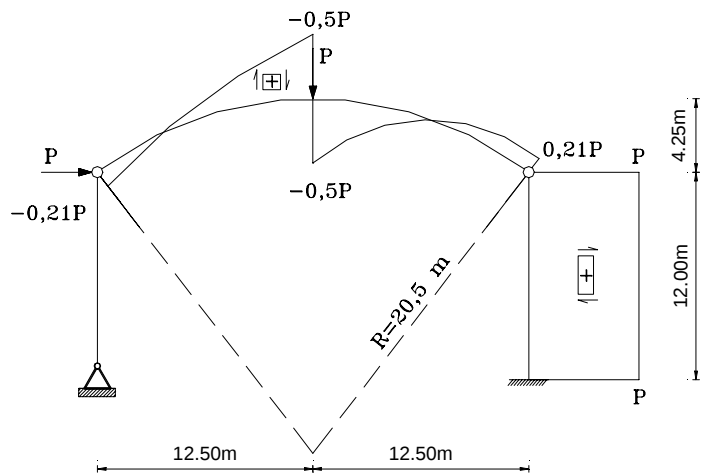
$$M_F = PR[0,5(\sin(37,565^\circ) - \sin\theta) - \cos\theta + \cos(37,565^\circ)]$$

$$M_{(0)} = PR[0,1]$$

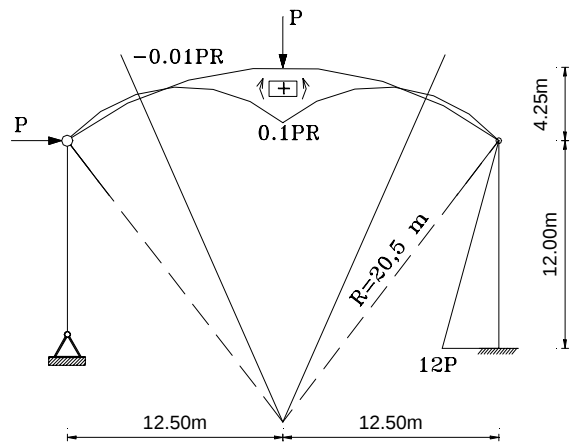
$$M_{(18,7825)} =$$



ESFUERZO AXIL



ESFUERZO CORTANTE



MOMENTO FLECTOR