

informe de solución de problemas sobre el momento de fuerza

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March 27, 2020

Problema 1

determinar el momento de la fuerza en el punto O

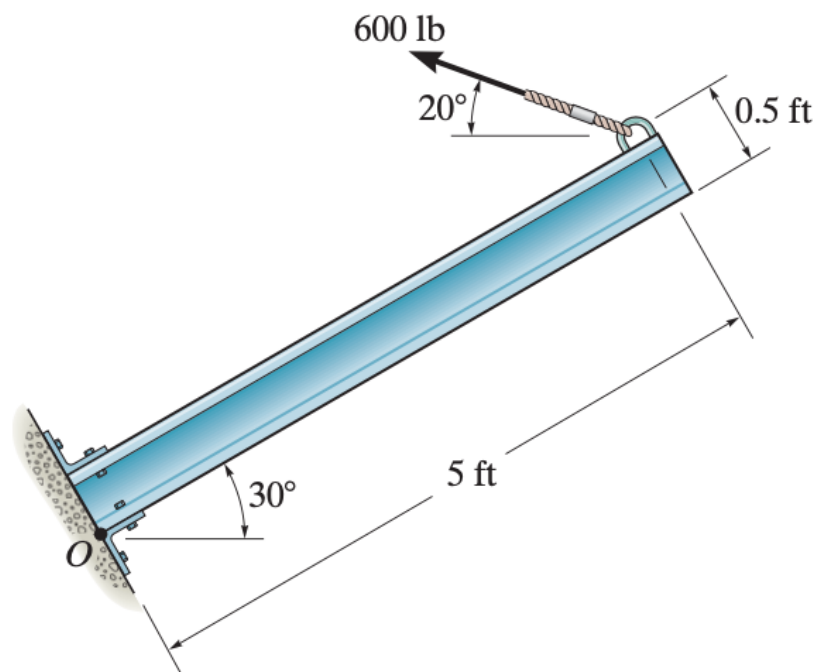


Figure 1: This is a caption

para darle la solución debemos inclinar la barra 30° y luego sumárselos a los 20°

$$20 + 30 = 50$$

$$Rx = 5$$

$$Ry = 0.5$$

$$Fx = -600 \cos(50)$$

$$Fy = 600 \sin(50)$$

se sustituyendo:

$$M_o = ((5) (600 \sin 50) - (0.5) (-600 \cos 50))$$

$$M_o = 2298.13 + 192.83$$

$$M_o = 2490.96 \text{ lb} \cdot \text{ft}$$

Problema 2.

Determinar el momento de las fuerzas en o

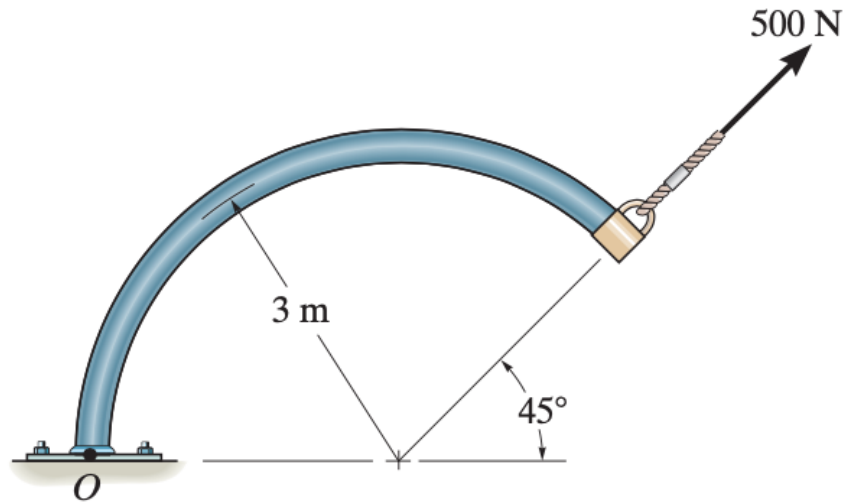


Figure 2: This is a caption

$$R_x = 3m + 3m \cos(45)$$

$$R_x = 5.12$$

$$R_y = 3m \sin(45) = 2.12$$

$$F_x = 500N \cos(45)$$

$$F_y = 500N \sin(45)$$

sustituyendo en

$$M_o = (r_x F_y - r_y F_x) F_x = 500N \cos(45)$$

$$M_o = (500 \sin 45 (5.12) - 500 \cos (82.12))$$

$$M_o = 1810.19 - 749.53$$

$$M_o = 1060.7N \cdot m$$

Prblema 3.

Determine el momento de la fuerza en o

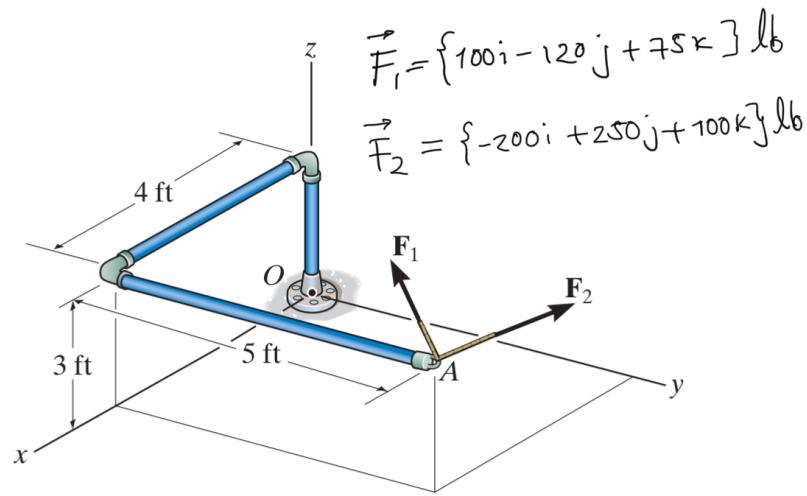


Figure 3: This is a caption

$$F_t = F_1 + F_2$$

$$F_t = (100i - 120j + 75k) + (-200i + 250j + 100k)$$

$$F_t = -100i + 130j + 175k$$

$$R_x = 4 \text{ ft}$$

$$R_y = 5 \text{ ft}$$

$$F_t = F_1 + F_2$$

$$= [(i(5)(175) - (130)(3)) - (j(4)(175) - (-100)(3)) + (k(4)(130) - (-100)(5))]$$

$$M_o = 480i - 100j + 120k$$