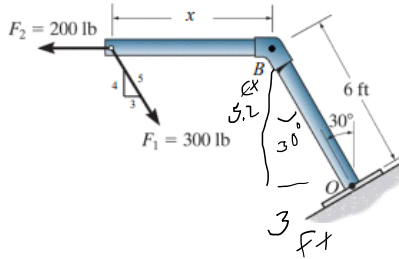


E 126 Mechanics of Solids – Quiz #2

You must show your work and clearly indicate the appropriate part letter (a., b., etc.) to receive full credit. Please write neatly, and clearly indicate your final answers, with a box or underline. Don't forget to include units!

Problem 1. Two forces act on the bar.

- a. If the resultant moment about point O from these two forces is 3000 lb-ft, determine the distance x .
- b. Is the resultant moment produced by the forces about point B greater than, less than, or equal to the resultant moment about point O ? Briefly explain your answer.



a.)

$$M_O = 3000$$

$$3000 = 200(5.2) - \frac{3}{5}300(5.2) + \frac{4}{5}300(x+3)$$

$$2896 = 240(x+3)$$

$$x = 9.07 \text{ ft}$$

b.)

$$M_B = 3000 - 200(0) - \frac{3}{5}300(0) + \frac{4}{5}300(9.07)$$

$$M_B = 823.2 \text{ lb} \cdot \text{ft}$$

for the x -direction
is 0 so $M_O > M_B$.