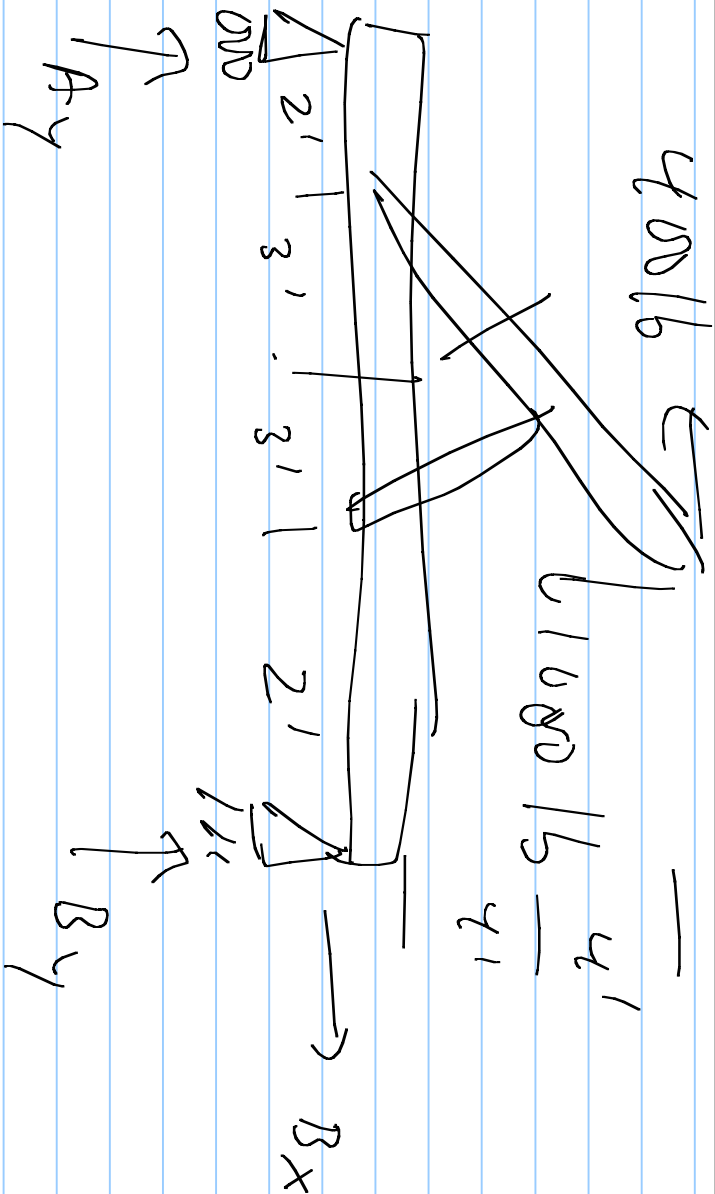


ENG 180

2/14/20

(8-27) $400lb \leftarrow$ $61600lb \leftarrow$



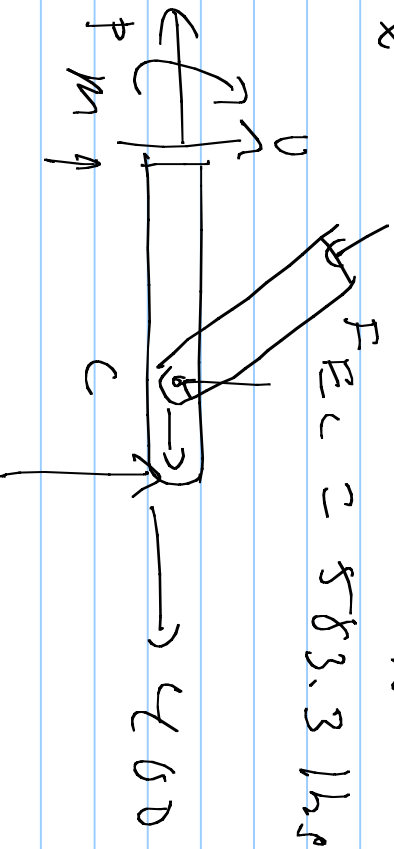
$$\sum M_B = -10Ay + 2(61600) + 8(400) = 0$$

$$A_y = 520 \text{ lbs}$$

$$\sum F_y = 520 - 1000 + B_y = 0$$

$$B_y = 480 \text{ lbs}$$

$$\sum F_x = -400 + B_x = 0 \Rightarrow B_x = 400 \text{ lbs}$$



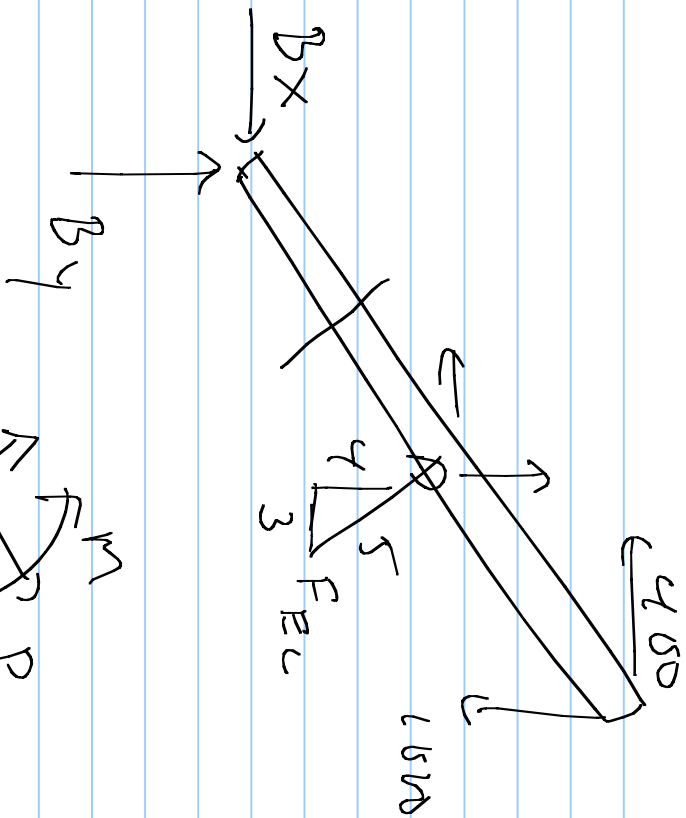
$$\sum M_b = 5(480) - 3(.8)(583.3)$$

$$480$$

$$-M = 0$$

$$\sum F_y = V + 480 - (.8)(583.3) = 0 \quad M = 1000 \text{ ft} - \text{lbs}$$

$$V = -13.3 \text{ lbs}; \quad P = 750 \text{ lbs}$$



$$\sum M_B = -6(100) + 8(400)$$

$$+ .8F_{Ec} \cdot 3 + .6F_{Ec} \cdot 4 = 0$$

$$4.8F_{Ec} = 2800$$

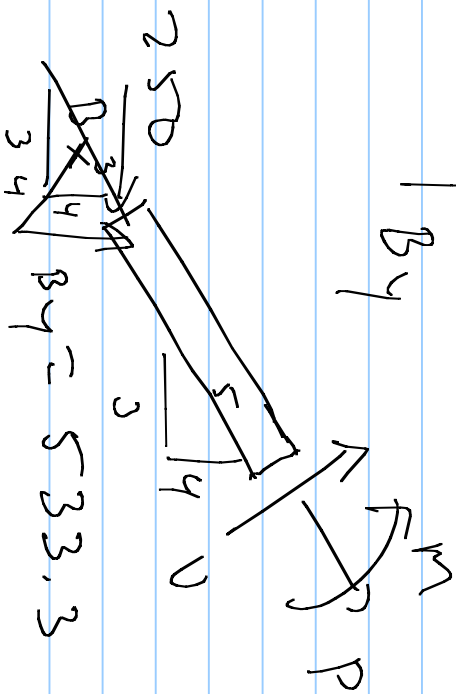
$$F_{Ec} = 583.3 \text{ lb}$$

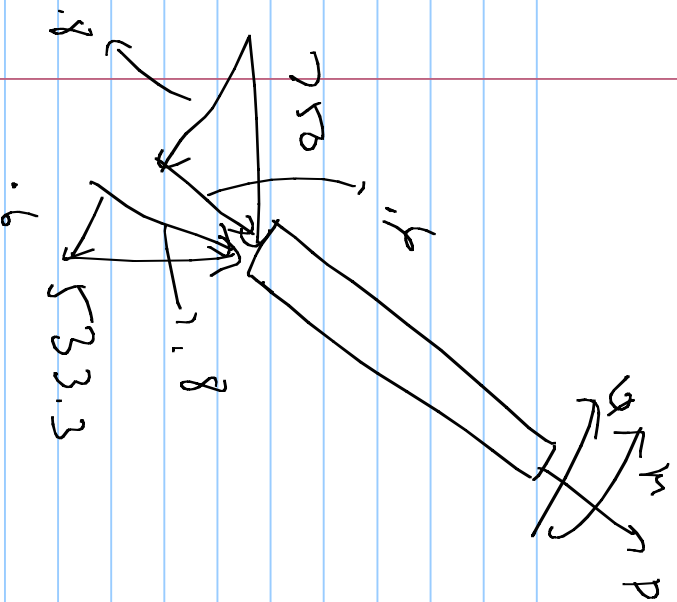
$$\sum F_x = B_x - 400 - (.6)(583.3) = 0$$

$$B_x = 750 \text{ lb}$$

$$\sum F_y = -1000 + B_y + .8(583.3) = 0$$

$$B_y = 533.3$$





$$\sum F_P = (.8)(533.3) + .6(750) + P = 0$$

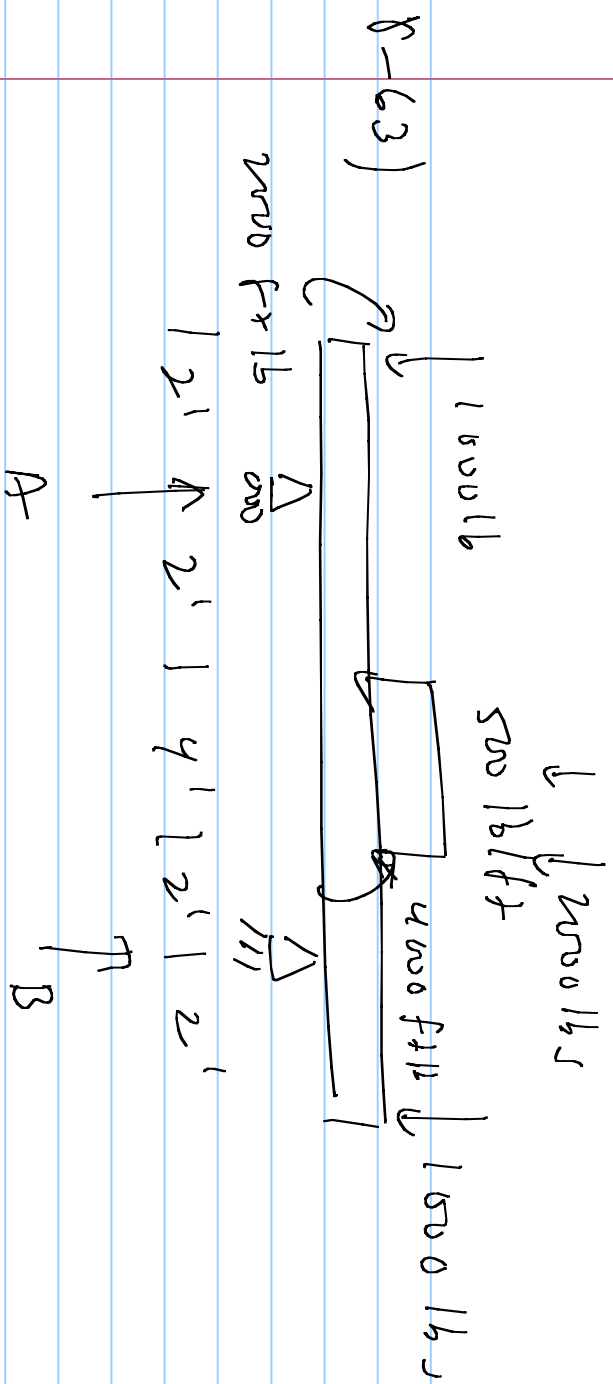
$$P = -826.7 \text{ lbs}$$

$$\sum F_V = V - (.6)(533.3) - (.8)(750) = 0$$

$$V = 950 \text{ lbs}$$

$$\sum M_B = 2.5 V + M = 0$$

$$M = -2375 \text{ ft-lbs}$$



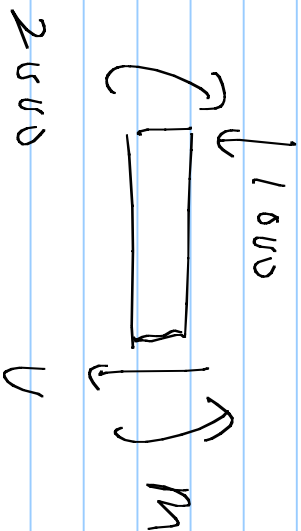
$$\sum M_A = 8B + 2(1000) - 2000 + 400$$

$$-10(1000) - 6(2000) - 4(2000) = 0$$

$$8B = 26,000 \Rightarrow B = 3250 \text{ lbs}$$

$$\sum F_y = A - 1000 - 2000 - 2000 - 1000 + 3250 = 0$$

$$A = 2750 \text{ lbs}$$



$$V(x) = \begin{cases} -1000 & 0 < x < 2 \\ 1750 & 2 < x < 4 \end{cases}$$

$$M(x) = \begin{cases} 3750 - 500x & 4 < x < 8 \\ -2250 & 8 < x < 10 \\ 1000 & 10 < x < 12 \end{cases}$$

$$w(x) = -500 \Rightarrow v(x) = -500x + C$$

$$M(x) = \begin{cases} -1000x + 2500 & 0 < x < 2 \\ 1750x - 3500 & 2 < x < 4 \\ 3750x - 250x^2 - 7500 & 4 < x < 8 \\ -2250x + 20,500 & 8 < x < 10 \\ 1000x - 12,000 & 10 < x < 12 \end{cases}$$