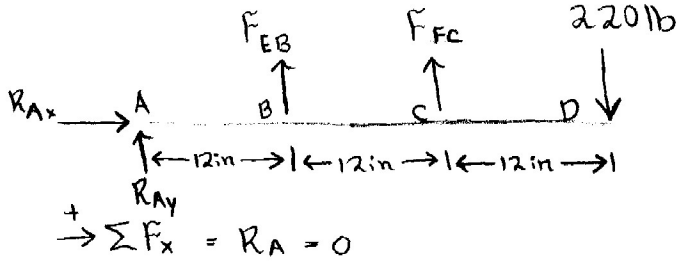
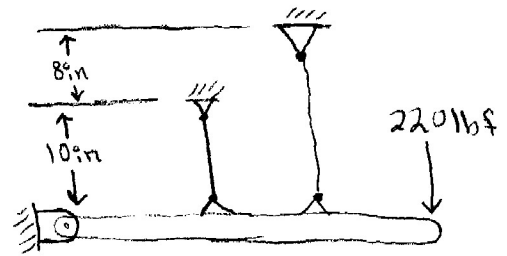


9.34

$$L_{FC} = 18 \text{ in}$$

$$L_{EB} = 10 \text{ in}$$

$$E = 29 \times 10^6 \text{ psi}$$



$$\rightarrow \sum F_x = R_{Ax} = 0$$

$$\sum M_A = -(220 \text{ lbf})(36 \text{ in}) + F_{FC}(24 \text{ in}) + F_{EB}(12 \text{ in}) = 0$$

$$F_{FC} + \frac{F_{EB}}{2} = 220 \text{ lbf} \quad (1)$$

Applying Geometry

$$\frac{\delta_B}{12} = \frac{\delta_C}{24} \rightarrow \delta_B = 0.5 \delta_C \quad (2)$$

$$\frac{\delta_B}{12} = \frac{\delta_D}{36} \rightarrow \delta_B = 0.33 \delta_D \quad (3)$$

Substitution For Eqn. (2)

$$\frac{F_{EB} L_{EB}}{A_{EB} E} = \frac{1}{2} \frac{F_{FC} L_{FC}}{A_{FC} E}$$

$$F_{EB} = \frac{1}{2} \frac{L_{FC} A_{EB}}{L_{EB} A_{FC}} F_{FC} = \frac{1}{2} \frac{(18) \left[\frac{\pi}{4} \left(\frac{1}{8} \right)^2 \right]}{(10) \left[\frac{\pi}{4} \left(\frac{1}{16} \right)^2 \right]} F_{FC} = 0.9 F_{FC}$$

$$F_{EB} = 0.9 F_{FC}$$

Substitute into Eqn (1)

$$F_{FC} + \frac{0.9 F_{FC}}{2} = 220$$

$$1.45 F_{FC} = 220$$

$$F_{FC} = 151.72 \text{ lbf}$$

Using Eqn (1)

$$F_{EB} = (220)(2) - F_{FC}$$

$$F_{EB} = 440 - 151.72$$

$$F_{EB} = 288.23 \text{ lbf}$$

That should be 330 lbf. Every appearance of the number 220 should be changed to 330 in the whole solution.

$$\delta_B = \frac{F_{EB} L_{EB}}{A_{EB} E} = \frac{(288.23)(36)}{\left[\frac{\pi}{4} \left(\frac{1}{8} \right)^2 \right] (29 \times 10^6 \text{ psi})}$$

$$\delta_B = 0.12 \text{ in}$$

$$\delta_B = 0.33 \delta_D \rightarrow \delta_D = 3 \delta_B$$

$$\delta_D = 3(0.12) = 0.35 \text{ in}$$

Multiply this and the other 2 circled answers by 3/2. Including the displacement.