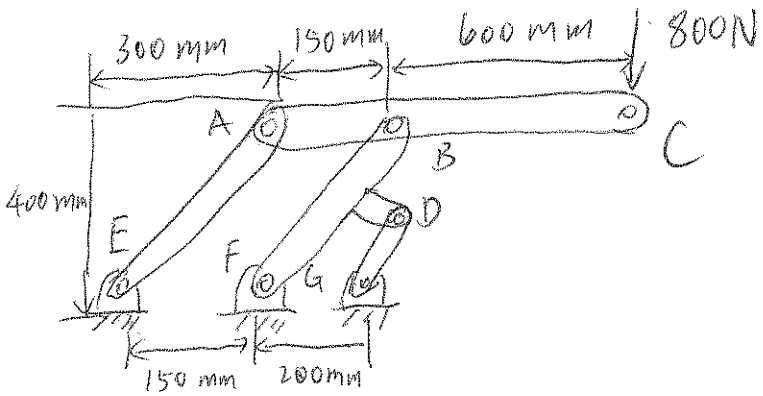
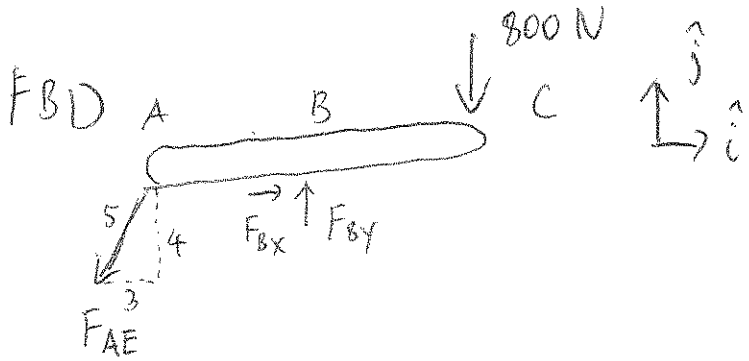
8.12 b Solution



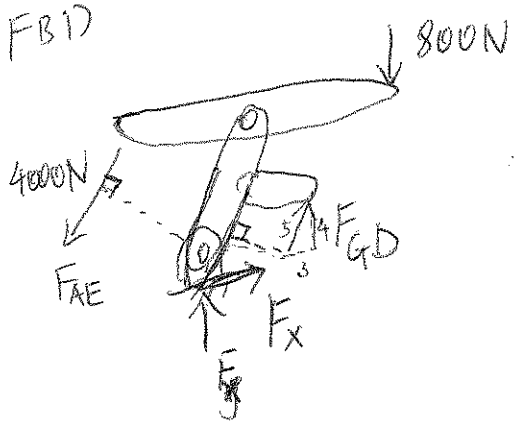
~~Find σ_{max} in~~

Find σ in DG



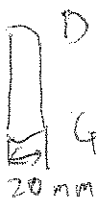
$$\{\Sigma \vec{M}_{/B} = \vec{0}\} \cdot \vec{k} \Rightarrow F_{AE} \cdot \frac{4}{5} \cdot 150mm = 800N \cdot 600mm$$

$$\Rightarrow F_{AE} = 4000N$$



$$\{\Sigma \vec{M}_{/F} = \vec{0}\} \cdot \vec{k}$$

$$\Rightarrow \cancel{4000N \cdot} F_{AE} \cdot \overline{EF} \cdot \frac{4}{5} + F_{GD} \cdot \overline{FG} \cdot \frac{4}{5} = 800N \cdot (\overline{BC} + \overline{FG})$$



$$\Rightarrow F_{GD} = 1000N$$

$$\text{So } \sigma = \frac{F_{GD}}{A} = \frac{F_{GD}}{\pi D^2/4} = 3.18 \times 10^6 \, Pa$$