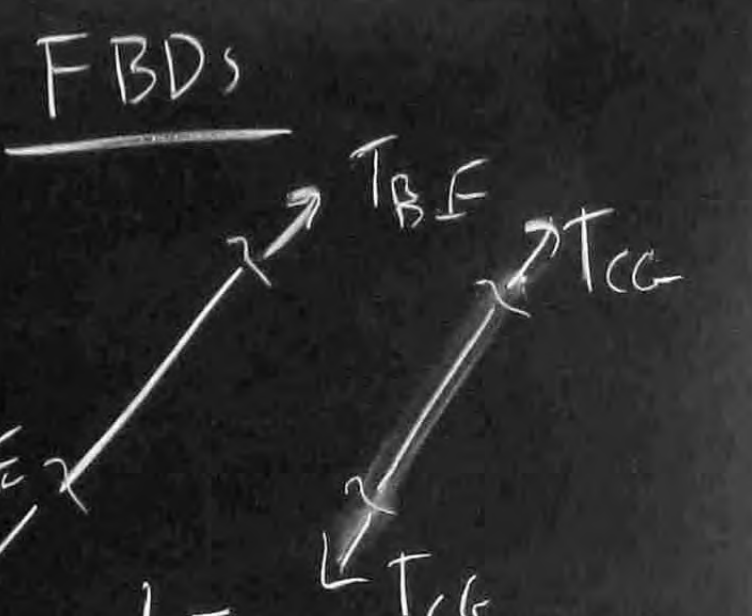
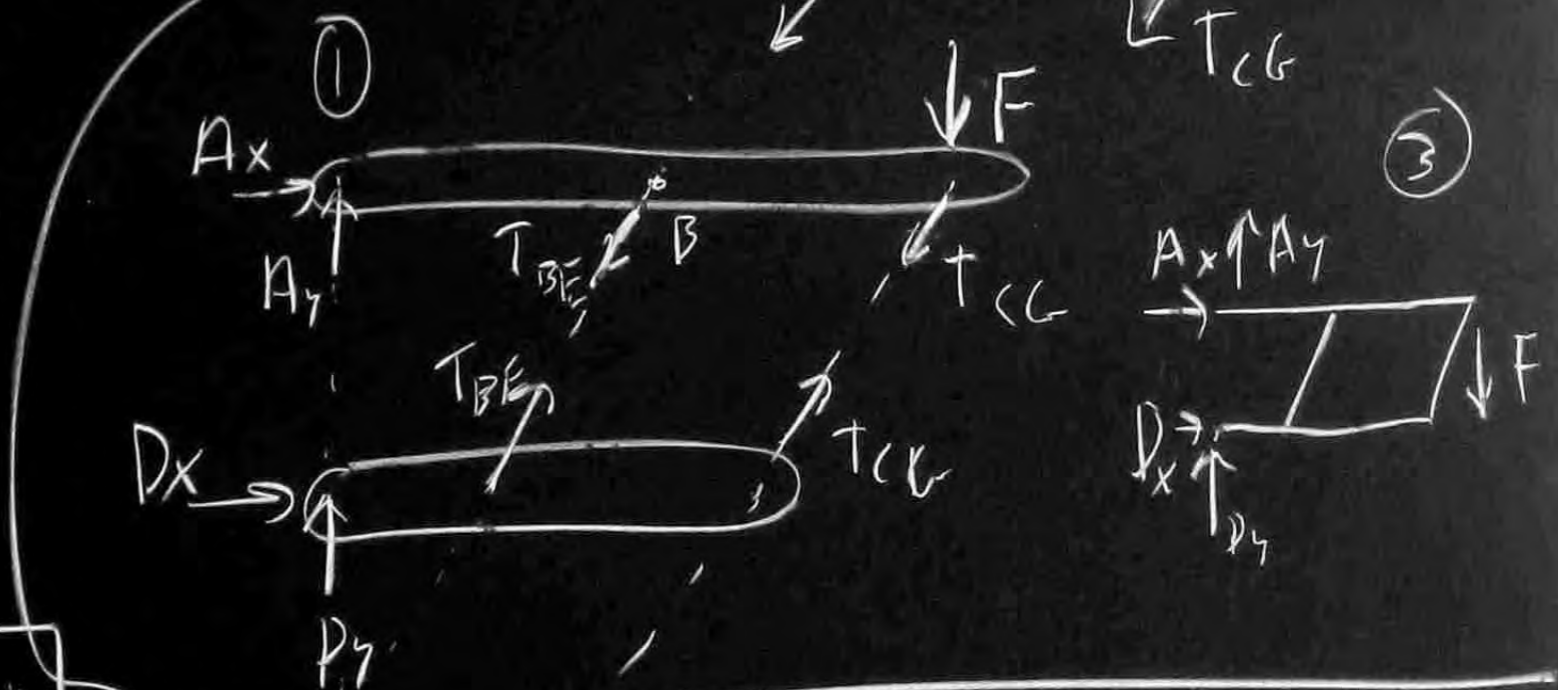
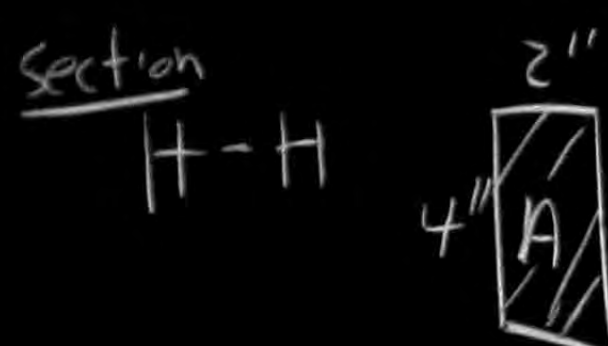


Find  $\sigma_{BE}$



$d = 1.5$  in  
 $l = 30$  in



FBD ③:  $\sum M_D = 0 \Rightarrow A_x = \frac{-75}{40} \cdot 480$   
 $= -900$  lbf

FBD ①:  $\sum M_H = 0$

$(-F \cdot 75 \text{ in}) - A_x \cdot \frac{75 \text{ in} \cdot 4 \text{ in}}{3} + \left( \vec{r}_{B/E} \times T_{BE} \hat{k} \right) \cdot \hat{k} = 0$   
 $\vec{r}_{B/E} = (45 \hat{i} + 105 \hat{j})$   
 $\vec{r}_{B/E} \times T_{BE} \hat{k} = (45 \hat{i} + 105 \hat{j}) \times T_{BE} \hat{k} = T_{BE} (-3 \hat{i} - 4 \hat{j})$

$(-480 \cdot 75 + 100 \cdot 900) \text{ lbf} + 24 \cdot T_{BE} = 0$

$T_{BE} = \frac{-100 \cdot 900 + 360 \cdot 100}{24}$

$= \frac{-100 \cdot 45}{2} \text{ lbf}$   
 $\approx -2250 \text{ lbf}$

$\sigma_{BE} = \frac{-2250 \text{ lbf}}{7 \text{ in}^2} = -321 \text{ lbf/in}^2$

$L = (-36 + 60) \text{ in} \cdot T_{BE}$