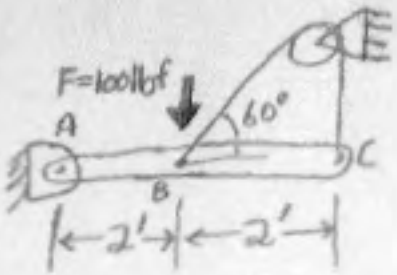
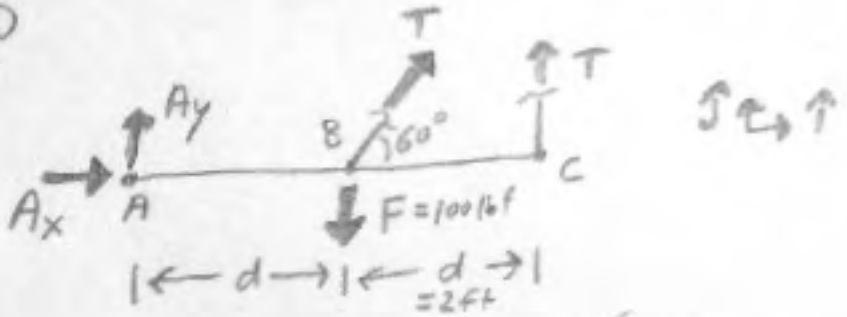
5.4.5



FBD



a)

$\circlearrowleft \sum M_{/A} = 0 \Rightarrow \quad T d \sin 60° + 2T d - d F = 0$

$\Rightarrow \quad T = \frac{F}{2 + \sin 60°}$

$= \frac{F}{2 + \sqrt{3}/2} = \frac{100\,lbf}{2 + \sqrt{3}/2} = \boxed{34.9\,lbf}$

b) $\sum F_x = 0 \Rightarrow \quad A_x + T \underbrace{\cos 60°}_{1/2} = 0$

Sum of moments about B = 0
So, Ay = T = 34.9 lbf

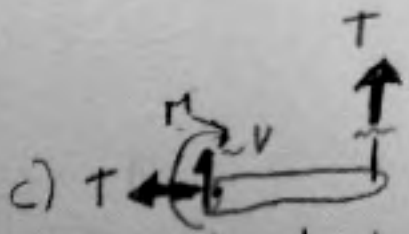
$A_x = -T \cos 60°$

$= \frac{-F}{2 + \sqrt{3}/2} \cdot \frac{1}{2}$

$= \frac{-50\,lbf}{2 + \sqrt{3}/2}$

$\boxed{A_x = 17.45\,lbf}$

c)



$\circlearrowleft \sum M_{/B} = 0 \Rightarrow \quad -M = Td$

$\Rightarrow \boxed{M = -Td = -69.8\,lbf \cdot ft}$ $\circlearrowleft_{2'}$

JUST TO THE RIGHT OF B.