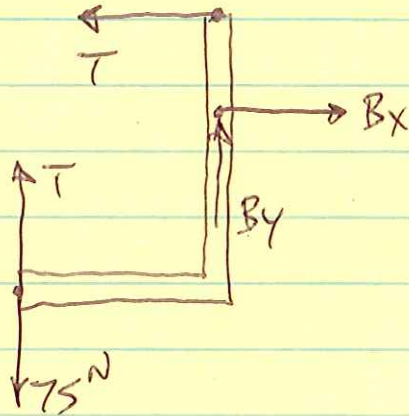


①

PROB. 4.78FIND T, \vec{B} .FBD

$$\sum F_x = 0 : B_x - T = 0$$

$$B_x = T$$

$$\sum F_y = 0 : B_y + T - 75 = 0$$

$$B_y = -T + 75$$

$$\sum M_B = 0 \text{ (+)} : (120^{\text{mm}})T - (160)T + (160^{\text{mm}})(75^{\text{N}}) = 0$$

$$-40T = -12,000, \quad \underline{T = 300^{\text{N}}}$$

$$B_x = 300^{\text{N}}, \quad B_y = -(300) + 75 = -225^{\text{N}}$$

$$\vec{B} = (300)\hat{i} + (-225)\hat{j}^{\text{N}}$$

$$\underline{|\vec{B}|} = \sqrt{300^2 + 225^2} = \underline{375^{\text{N}}}$$

$$\underline{\theta} = \text{TAN}^{-1}\left(\frac{225}{300}\right) = \underline{36.9^\circ} \quad \swarrow$$