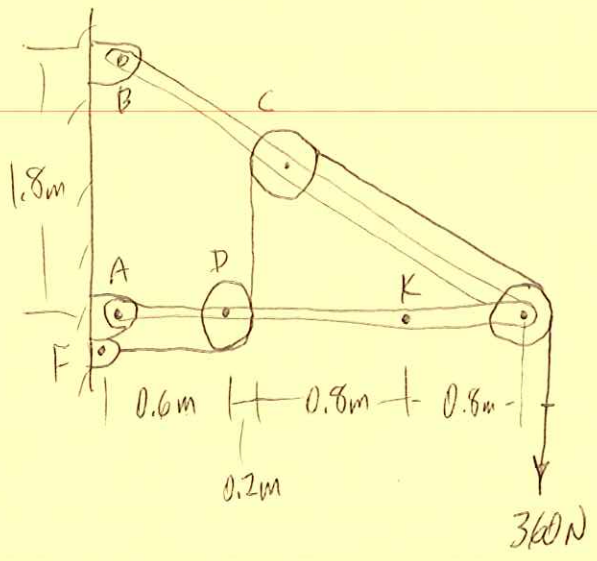
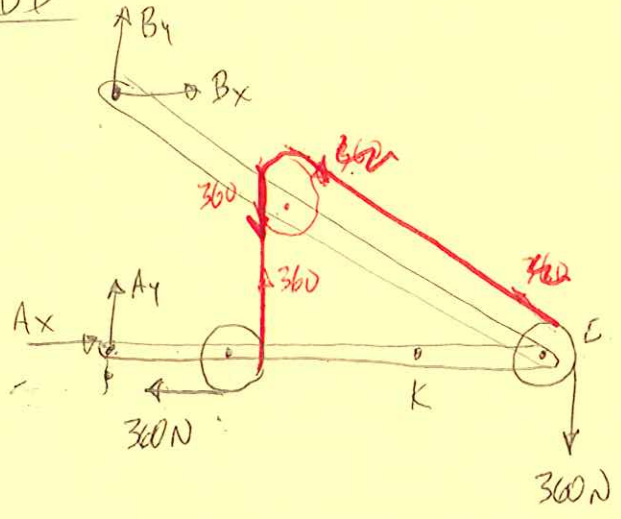


PROB. 7.16

$r_{pulley} = 200\text{mm}$ , DETERMINE INTERNAL FORCES AT K.



FBD



$$\sum M_A = 0 \quad (+\uparrow): \quad -(1.8\text{m})B_x - \left(\frac{2.6}{0.726\text{m}}\right)(360\text{N}) - (0.2\text{m})(360\text{N}) = 0$$

$$B_x = -560\text{ N}$$

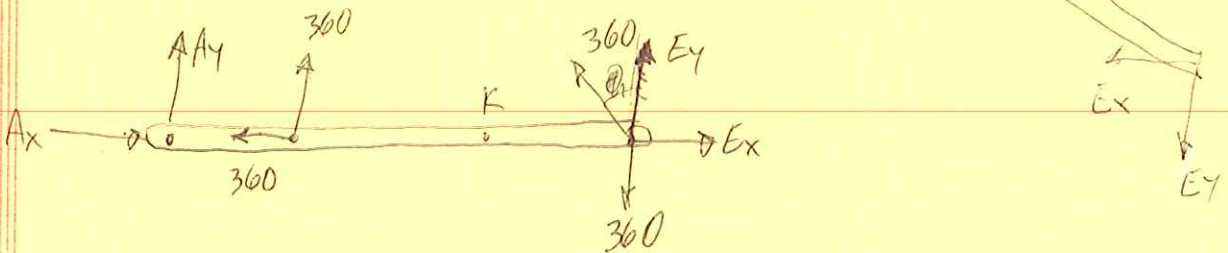
$$\sum F_x = 0: \quad B_x + A_x - 360 = 0, \quad A_x = 920\text{ N}$$

PROB. 7.16

4

$$\sum F_y = 0: A_y + B_y = 360$$

FBD OF AE:



$$\theta = \tan^{-1}\left(\frac{2.4}{1.8}\right) = 53.1^\circ$$

$$\sum F_y = 0: A_y + 360 + 360 \cos 53.1 - 360 = 0$$

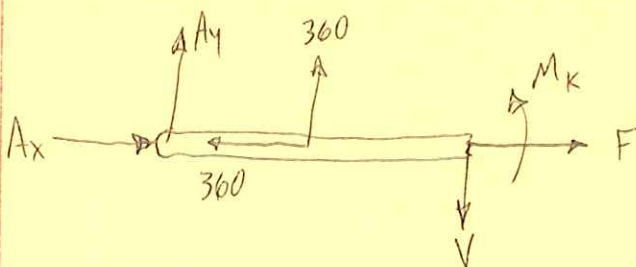
$$A_y = -270 \text{ N}$$

$$\sum M_E = 0 \quad + \curvearrowright \quad -(2.4 \text{ m})A_y - (1.8 \text{ m})(360 \text{ N}) = 0$$

$$A_y = -270 \text{ N}$$

$$B_y = 360 - A_y = 360 - (-270) = 630 \text{ N}$$

FBD OF AK:



$$\sum F_x = 0: A_x - 360 + F = 0$$
$$F = 360 - (920) = -560 \text{ N}$$

$$\sum F_y = 0: A_y + 360 - V = 0$$
$$V = (-270) + 360 = 90 \text{ N}$$

$$\sum M_K = 0 \quad + \curvearrowright: M_K - (1.6 \text{ m})(-270 \text{ N}) - (1.0 \text{ m})(360) = 0$$

$$M_K = -72 \text{ N}\cdot\text{m}$$