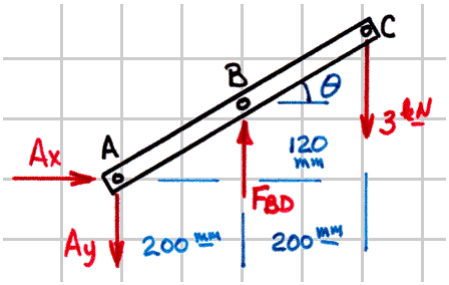
1-68*

From a free-body diagram of the bar *ABC*, the equations of equilibrium give



$$\rightarrow \Sigma F_x = 0: \qquad A_x = 0$$

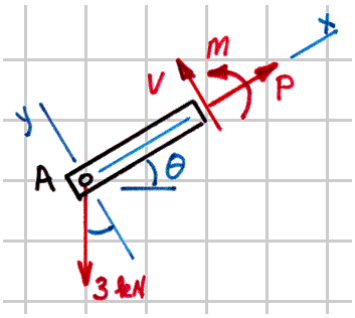
$$\uparrow \Sigma F_y = 0: \qquad -A_y + F_{BD} - 3 = 0$$

$$\circlearrowleft \Sigma M_A = 0: \qquad 200F_{BD} - 400(3) = 0$$

$$F_{BD} = 6 \text{ N}$$

$$A_x = 0 \text{ N} \qquad A_y = 3 \text{ N}$$

Then, from a free-body diagram of the left section of the bar, the equations of equilibrium give



$$Z \quad \Sigma F_x = 0: \qquad P - (3)\sin\theta = 0$$

$$\wedge \quad \Sigma F_y = 0: \qquad V - (3)\cos\theta = 0$$

$$\circlearrowleft \Sigma M_{cut} = 0: \qquad (0.1)(3) - M = 0$$

in which

$$\theta = \tan^{-1}\frac{120}{200} = 30.964°$$

Then

$P = 1.543$ kN ..... **Ans.**

$V = 2.57$ kN ..... **Ans.**

$M = 0.3$ kN·m ..... **Ans.**