

4-60

$A(0,0,0), B(4,3,-2)$

$C(4,3,0)$

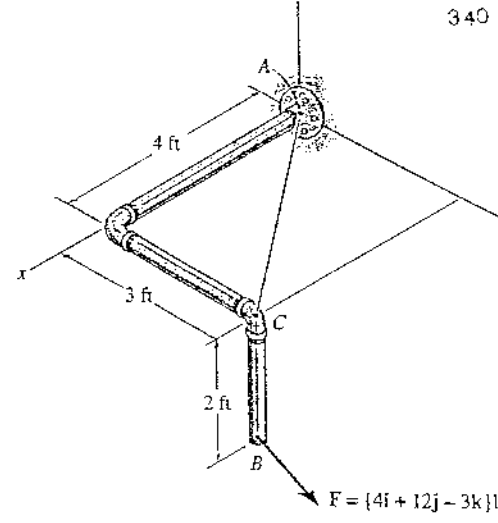
$r_{AC} = 4i + 3j$

$|r_{AC}| = \sqrt{4^2 + 3^2} = 5$

$u_{AC} = \frac{4}{5}i + \frac{3}{5}j$  /  $F = 4i + 12j - 3k$  /  $r_{BC} = 0i + 0j - 2k$

$M_{AC} = \begin{vmatrix} u_x & u_y & u_z \\ r_x & r_y & r_z \\ F_x & F_y & F_z \end{vmatrix} = \begin{bmatrix} 4/5 & 3/5 & 0 \\ 0 & 0 & -2 \\ 4 & 12 & -3 \end{bmatrix} = 14.4 \text{ lb-ft}$

$\vec{M}_{AC} = M_{AC} * u_{AC} = 11.5i + 8.64j$



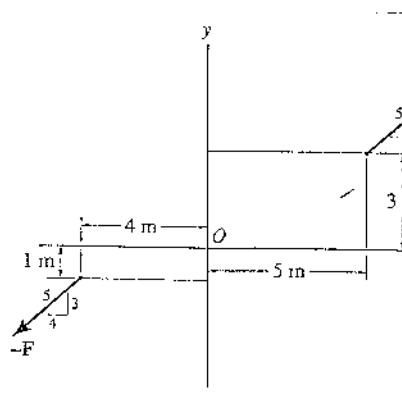
Probs. 4-59/60

4-71

$M = 8 * \frac{3}{5} * 9$

$- 8 * \frac{4}{5} * 4$

$= 17.6 \text{ kN-m}$



Prob. 4-71