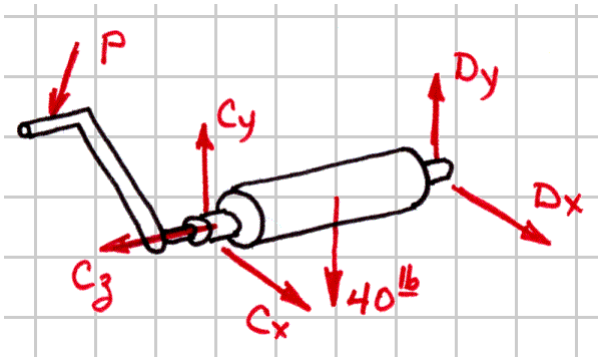
1-33

$$\mathbf{P} = -P\mathbf{j}$$



Moment equilibrium about C

$$\Sigma \mathbf{M}_C = \mathbf{0}:$$

$$(-50\mathbf{k}) \times (D_x\mathbf{i} + D_y\mathbf{j})$$
$$+(-20\mathbf{k} + 2.5\mathbf{i}) \times (-40\mathbf{j})$$
$$+(11\mathbf{k} - 17.32051\mathbf{i} + 10\mathbf{j}) \times (-P\mathbf{j}) = \mathbf{0}$$

has components

x: $+50D_y - 800 + 11P = 0$

y: $-50D_x = 0$

z: $-100 + 17.32051P = 0$

$P = 5.77350 \text{ lb} \cong 5.77 \text{ lb}$ ..... **Ans.**

$D_x = 0 \text{ lb}$ ..... **Ans.**

$D_y = 14.7298 \text{ lb} \cong 14.73 \text{ lb}$ ..... **Ans.**

Then the x-, y-, and z-components of the force equilibrium equation give

x: $C_x + 0 = 0$ $\quad C_x = 0 \text{ lb}$ ..... **Ans.**

y: $C_y + 14.7298 - 40 - 5.77350 = 0$ $\quad C_y = 31.044 \text{ lb} \cong 31.0 \text{ lb}$ ..... **Ans.**

z: $C_z = 0$ $\quad C_z = 0 \text{ lb}$ ..... **Ans.**