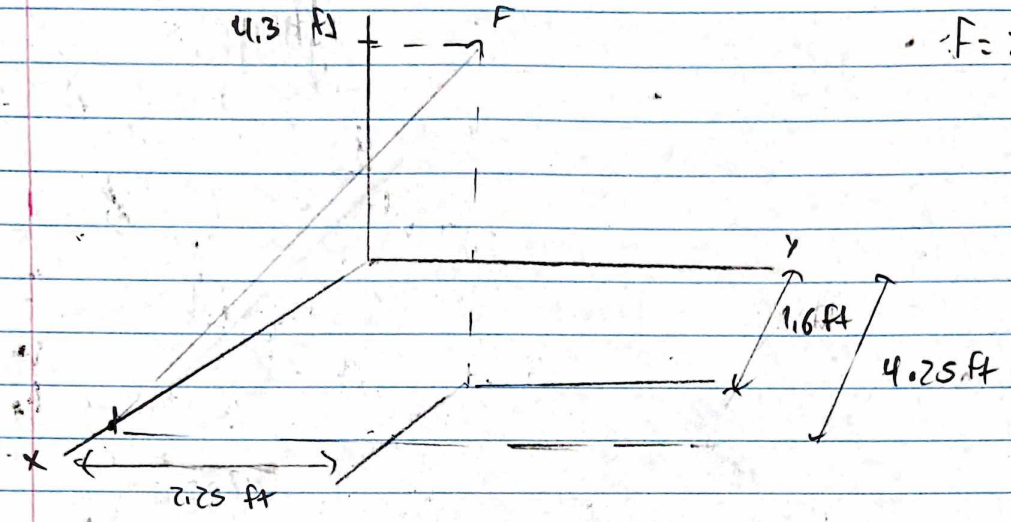
Solutions: 21-5-4.5-MK-07




$\therefore F = 32\,lb$

$r_y = 4.25\,\hat{i}$ ft

$\|r_{strut}\| = \sqrt{(4.25-1.6)^2 + 2.25^2 + 4.3^2} = 5.53$ ft

$f_x = -(32)\cdot\frac{(4.25-1.6)}{5.53} = -15.3$ lb

$f_y = (32)\frac{(2.25)}{5.53} = 13.0$ lb

$f_z = (32)\frac{(4.3)}{5.53} = 24.8$ lb

$$r \times F = M = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ 4.25 & 0 & 0 \\ -15.3 & 13 & 24.8 \end{vmatrix}$$

$M = 0\hat{i} - 105.4\hat{j} + 55.25\hat{k}$

$M_y = -105.4\hat{j}$ lb-ft