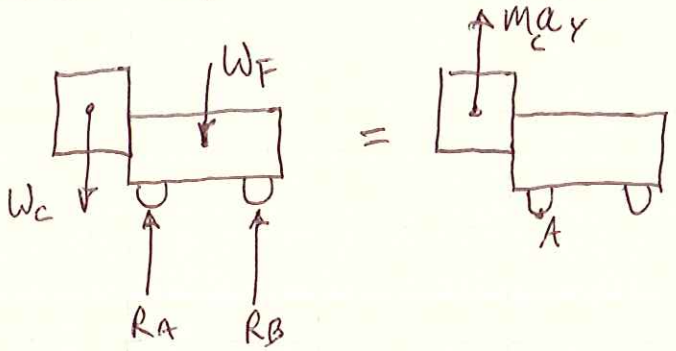
PROB. 16-9

$W_F = 2250^{LB}$, $W_C = 2500^{LB}$, FIND a_y FOR $R_B = 0$ AND R_A



$$\Sigma F_y = m\bar{a}_y : -W_C - W_F + R_A = m_C a_y$$

$$R_a = m_C a + W_C + W_F = \left(\frac{W_C}{g}\right)a + W_C + W_F = W_C\left(\frac{a}{g}+1\right) + W_F$$

$$\Sigma \vec{M}_A = \Sigma (\vec{M}_A)_{EFF} \; +\circlearrowleft :$$

$$(3\,ft)W_C - (4\,ft)W_F = -(3\,ft)m_C a_y$$

$$a_y = \frac{1}{3m_C}(4W_F - 3W_C) = \frac{g}{3W_C}(4W_F - 3W_C) = \frac{g}{3}\left(4\frac{W_F}{W_C} - 3\right)$$

$$a_y = g\left(\frac{4}{3}\frac{W_F}{W_C} - 1\right)$$

$$a = \left(32.2\,\frac{ft}{s^2}\right)\left[\frac{4}{3}\left(\frac{2250}{2500}\right) - 1\right] = 6.44\,\frac{ft}{s^2}$$

$$R_A = \left(2500^{LB}\right)\left\{\left[\left(\frac{6.44}{32.2}\right) + 1\right] + (2250)\right\} = 5250^{LB}$$

FOR EACH WHEEL, $R_A = 2625^{LB}$