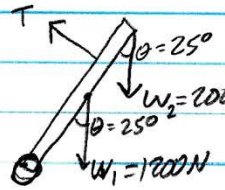
Unit 4 Chapter 8 Homework 3

relate ℓ to $\frac{1}{2}\ell$: $\frac{1}{2}\ell = \frac{1}{2}\ell$

28)



$\Sigma\tau = 0 = w_1 r_1 \sin 25° + w_2 r_2 \sin 25° + Tr$

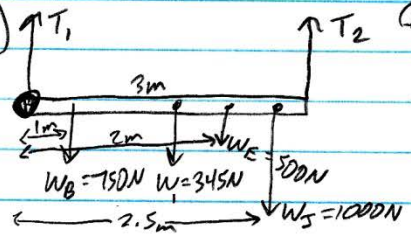
$0 = -1200(\frac{1}{2}\ell)\sin 25° - 2000(\ell)\sin 25° + T(\frac{3}{4}\ell)$

$0 = -253.57\ell - 845.24\ell + \frac{3T\ell}{4}$

$\frac{1098.81\ell}{\ell} = \frac{\frac{3}{4}T\ell}{\ell}$

$T = 1465.08N$

74)



① $\Sigma\tau = 0 = w_B r_B + w_1(r_1) + w_E r_E + w_J r_J + T_2 r_2$

$0 = -150(1) - 345(1.5) - 500(2) - 1000(2.5) + T_2(3)$

$T_2 = 1589.17N$

② $\Sigma F_y = 0 = T_1 + T_2 + w_B + w_1 + w_E + w_J$