Unit 4 Chapter 8 Homework 2

7) (A) ① $\Sigma \tau = 0 = F_t(r_t)\sin 12^\circ + W_A(r_A)$

$0 = +F_t(.08)\sin 12^\circ - 41.5(.29)$

$F_t = 723.56\,N$

(B) ① $\Sigma F_y = 0 = F_{sy} + F_t \sin 12^\circ + W$

$0 = F_{sy} + 723.56(\sin 12^\circ) - 41.5$

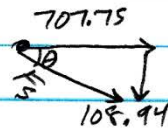
$F_{sy} = -108.94\,N$

② $\Sigma F_x = 0 = F_{sx} + F_t \cos 12^\circ$

$0 = F_{sx} + 723.56 \cos 12^\circ$

$F_{sx} = 707.75\,N$

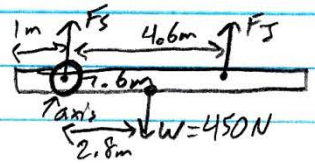
③



$a^2+b^2=c^2$ & $\tan^{-1}\left(\frac{o}{a}\right)=\theta$

$716.09\,N$ at -8.75° from x axis

8)



(A) ① $\Sigma \tau = 0 = W(r) + F_J(r_J)$

$0 = -450(2.8) + F_J(4.6)$

$F_J = 273.91\,N$

② $\Sigma F_y = 0 = F_S + F_J + W$

$0 = F_S + 273.91 - 450$

$F_S = 176.09\,N$