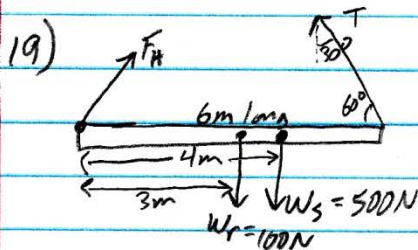


Unit 4 Chapter 8 Homework 1

3) (A) $\Sigma \tau = F_1 r_1 \sin \theta_1 + F_2 r_2 \sin \theta_2 + F_3 r_3 \sin \theta_3$
 $\Sigma \tau = 30(0)(\sin 45^\circ) + 25(2)(\sin 60^\circ) - 10(4)(\sin 20^\circ)$
 $\Sigma \tau = +29.62 \text{ N}\cdot\text{m}$ dir. = out of page

(B) $\Sigma \tau = +30(2)(\sin 45^\circ) + 25(0)(\sin 60^\circ) - 10(2)(\sin 20^\circ)$
 $\Sigma \tau = +35.59$ dir. = out of page



(A) $\Sigma \tau = 0 = W_r(r_r) - W_s(r_s) + T(r_t) \sin 60^\circ$
 $\Sigma \tau = 0 = -100(3) - 500(4) + T(6) \sin 60^\circ$
 $T = 442.64 \text{ N}$

(B) $\Sigma F_x = 0 = F_{Hx} + T_x$
 $0 = F_{Hx} - 442.64 \cos 60^\circ$
 $F_{Hx} = +221.32 \text{ N}$
 (right)

$\Sigma F_y = 0 = F_{Hy} + W_r + W_s + T_y$
 $0 = F_{Hy} - 100 - 500 + 442.64 \sin 60^\circ$
 $F_{Hy} = +216.66 \text{ N}$
 (up)