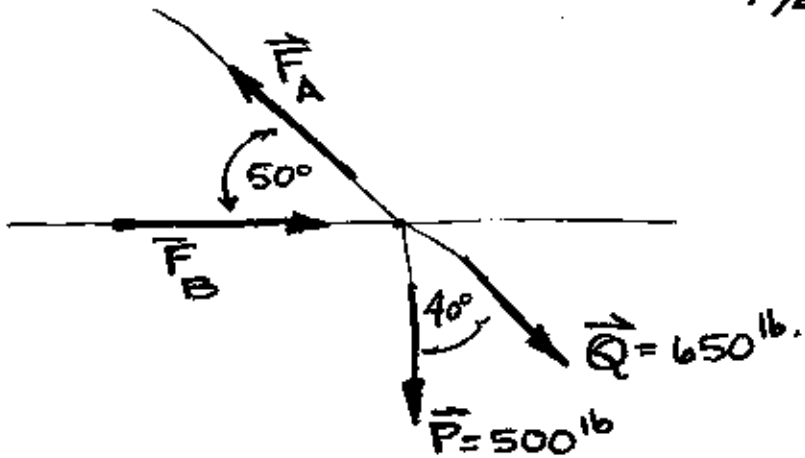
MECH 234 – MILANO

HW 2-51 p. 42



FORCES IN EQUILIBRIUM

$\therefore \Sigma \vec{F} = 0$

$\Sigma F_x = 0$ and $\Sigma F_y = 0$

$\Sigma F_x = 0 = -F_A \cos 50° + F_B + 650 \sin 40°$

$0 = -.643 F_A + F_B + 417.81$

$-417.81 = -.643 F_A + F_B$ (1.)

$\Sigma F_y = 0 = F_A \sin 50° - 500^{lb.} - 650 \cos 40°$

$0 = .766 F_A - 500 - 497.93$ (2.)

$997.93 = .766 F_A$

$\therefore F_A = \frac{997.93}{.766} = \boxed{1302.78^{lb.} = F_A}$

SUB INTO (1.)

$-417.81 = -.643(1302.78) + F_B$

$-417.81 + 837.69 = \boxed{F_B = 419.88^{lb.}}$