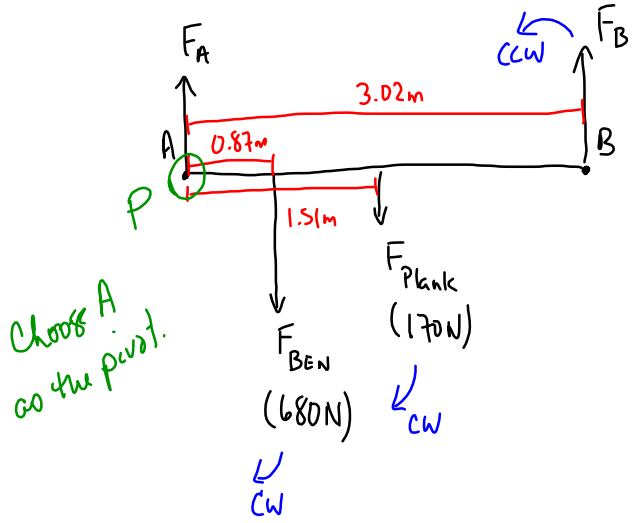
A Bridge Problem



What is F_A? F_B?

Choose A as the pivot.

$$\Sigma \tau_{CCW} = \Sigma \tau_{CW}$$

$$\tau_B = \tau_{BEN} + \tau_{Plank}$$

Recall:

$\tau = r_\perp F$

$\tau = rF\sin\theta$

$$(3.02\text{m})F_B = (0.87\text{m})(680\text{N}) + (1.51\text{m})(170\text{N})$$

$$(3.02\text{m})F_B = 591.6\text{N} + 256.7\text{N}$$

$$(3.02\text{m})F_B = 848.3\text{N}$$

$$F_B = 281\text{N}$$

Vertically: $F_A + F_B = F_{BEN} + F_{Plank}$

$$F_A + 281\text{N} = 680\text{N} + 170\text{N}$$

$$F_A = 569\text{N}$$

Review of Static Equilibrium (FOP/Problems/24, 25, 27-36)

HW Probs (Tues or Wed) -> PP/501

Be sure to get these done!

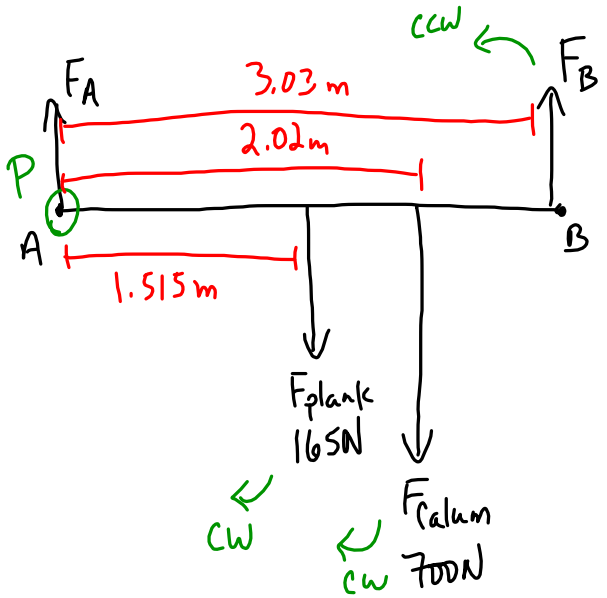
A Bridge Problem

$F_{Calum} = 700N$

$F_{plank} = 80N + 85N = 165N$

length of plank 3.03 m

$r_{Calum} = 2.02\ m$



$\Sigma \tau_{CCW} = \Sigma \tau_{CW}$

Recall:

$\tau = r_\perp F$

$\tau = rF\sin\theta$

$\tau_B = \tau_{plank} + \tau_{Calum}$

$(3.03m)F_B = (1.515m)(165N) + (2.02m)(700N)$

$(3.03m)F_B = 249.975N\cdot m + 1414N\cdot m$

$(3.03m)F_B = 1663.975N\cdot m$

$F_B = 549N$

555N

Actual

Vertically, $\vec{F}_{net} = 0$

$F_A + F_B = F_{plank} + F_{Calum}$

$F_A + 549N = 165N + 700N$

$F_A = 316N$

310N