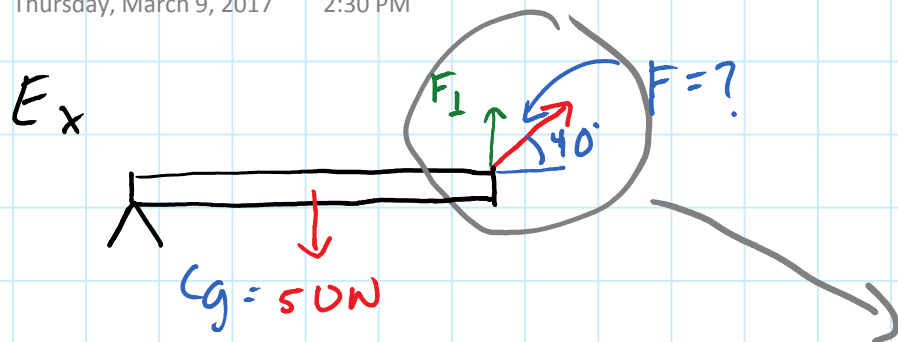


Angled Equilibrium Problems

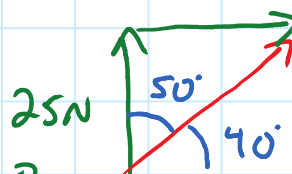
Thursday, March 9, 2017 2:30 PM



$$\sum \tau = 0 \quad \text{CW} \tau = \text{CCW} \tau$$

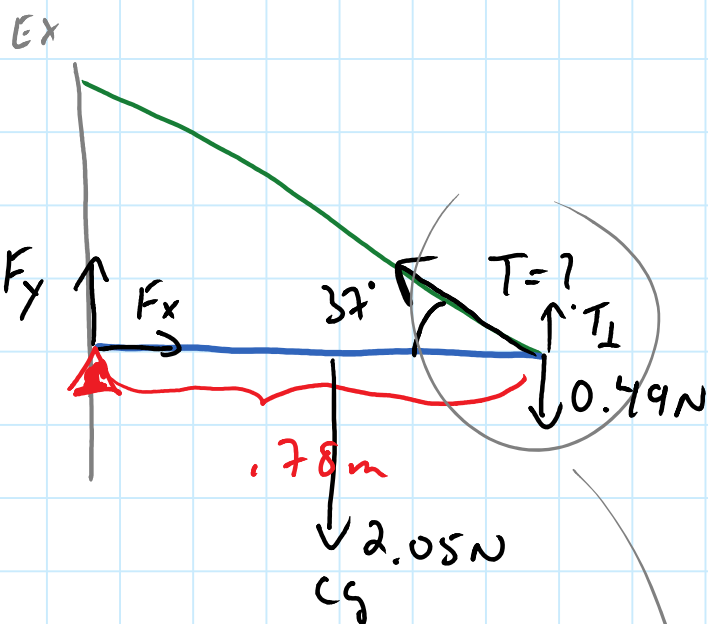
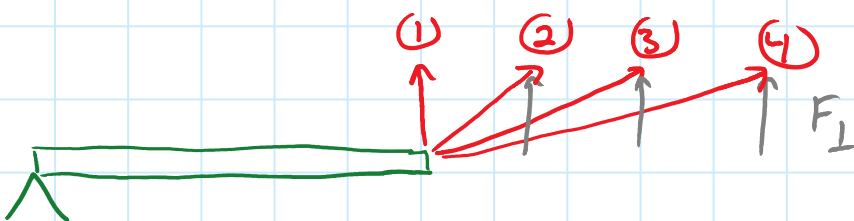
$$C_g \left(\frac{1}{2} L \right) = F_{\perp} (L)$$

$$25 \text{ N} = F_{\perp}$$



$$\cos 50^\circ = \frac{25 \text{ N}}{F}$$

$$F = \frac{25 \text{ N}}{\cos 50^\circ} = 38.9 \text{ N}$$



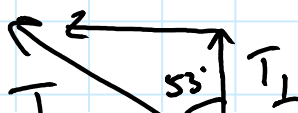
$$\sum \tau = 0 \quad \text{CW} \tau = \text{CCW} \tau$$

$$C_g (.39 \text{ m}) + F_g (.78) = T_{\perp} (.78)$$

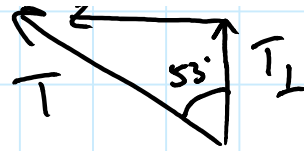
$$(2.05) (.39) + (.49) (.78) = T_{\perp} (.78)$$

$$1.19 = T_{\perp} (.78)$$

$$T_{\perp} = 1.515 \text{ N}$$



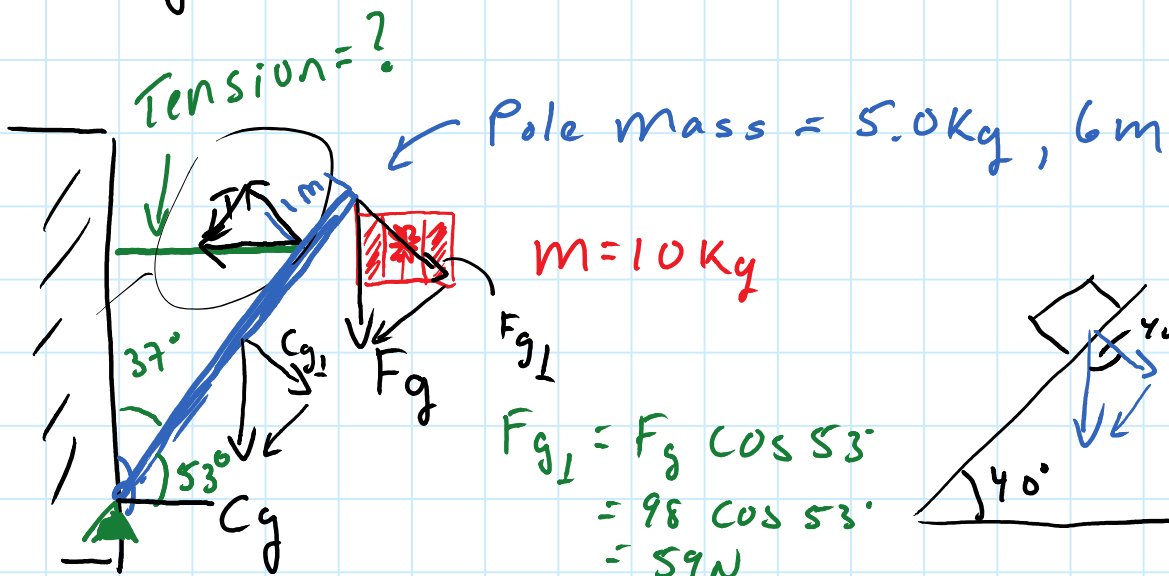
- Day
 1) Translated Part 2
 2) Angled #1-3



$$\cos 53^\circ = \frac{1.515}{T}$$

$$T = \frac{1.515}{\cos 53^\circ} = 2.52 \text{ N}$$

Ex Flag Pole



$$C_{g\perp} = C_g \cos 53^\circ$$

$$= 49 \cos 53^\circ$$

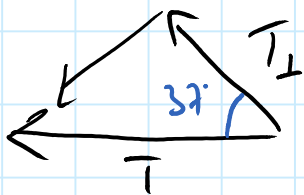
$$= 29.5 \text{ N}$$

$$\sum \tau = 0 \quad C_w \tau = C_w \tau$$

$$C_{g\perp} (3\text{m}) + F_{g\perp} (6\text{m}) - T_{\perp} (5)$$

$$(29.5)(3) + (59)(6) = T_{\perp} (5)$$

$$T_{\perp} = 88.5 \text{ N}$$



$$\cos 37^\circ = \frac{T_{\perp}}{T} \quad T = \frac{88.5}{\cos 37^\circ} = 111 \text{ N}$$

$\cos 37^\circ = \frac{III}{IV}$