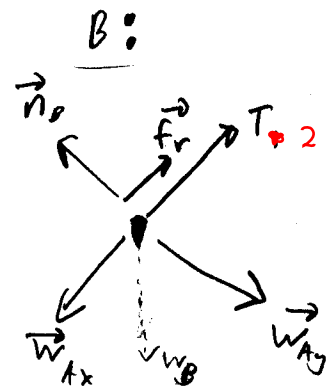
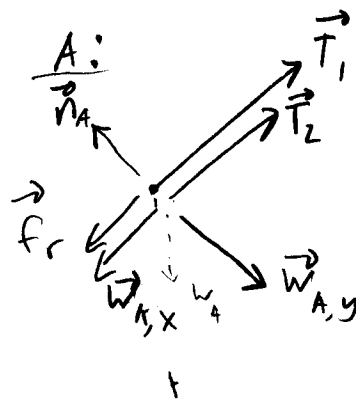
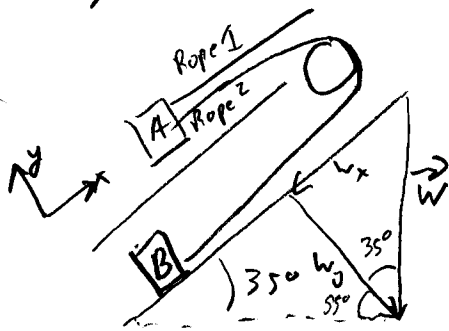


2) ~~800~~ 0 and 0



From the diagram, we can see that for the weight forces $W_x = W \sin 35^\circ$ $W_y = W \cos 35^\circ$ both are the same,

$$W_{Ax} = W_{Bx} = mg \sin 35 \quad W_{Ay} = W_{By} = W \cos 35^\circ$$

Let's find the forces of rolling friction: (which will be the same)

$$f_r = \mu_r n$$

From N's second $\Sigma F_{net,y} = m a_y$ (for both)
 $n - W_y = 0$ (because they'll stay on the ramp)

$$\Rightarrow n = mg W_y = W \cos 35 = mg \cos 35$$

$$\text{So } f_r = \mu_r mg \cos 35$$

Now, since $a_x = 0$ (constant speed)

$$\Sigma F_{net,x} = m_A a_{Ax} = 0$$

$$T_1 + T_2 - f_r - W_{Ax} = 0$$

$$F_{net,y} = m_B a_{By} = 0$$

$$T_2 + f_r - W_{Ax} = 0$$

solve for T_1 !

$$T_2 = W_{Ax} - f_r$$

$$W_{Ax} - f_r + T_1 - f_r - W_{Ax} = 0$$

$$\Rightarrow T_1 = 2 f_r = 2 \mu_r mg \cos 35 = 771 \text{ N}$$

$$\text{And } T_2 = W_{Ax} - f_r = mg \sin 35 - \mu_r mg \cos 35 = 8608 \text{ N}$$

Reflect The system counterbalances the weights, so the engine only needs to overcome friction. On the other hand, the tension in the other cable is very large.