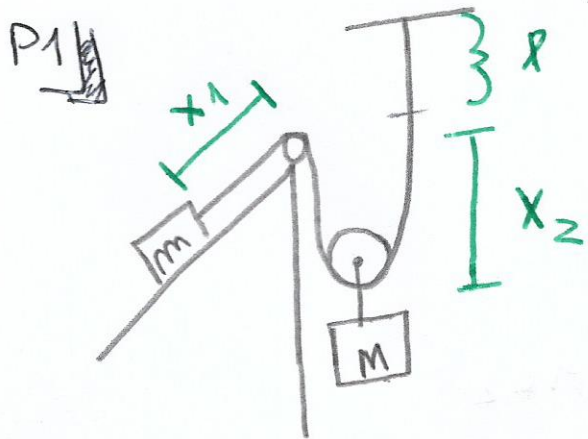
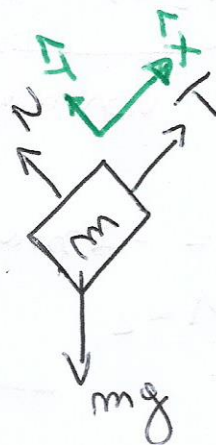




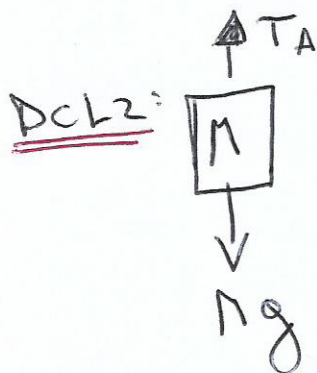
$$\Rightarrow \pi r + x_1 + 2x_2 + l = L \quad (*)$$

$$x) T - m(x)mg = m\ddot{x}_1 \quad (1)$$

$$y) N - \cos(\alpha)mg = 0 \quad (2)$$

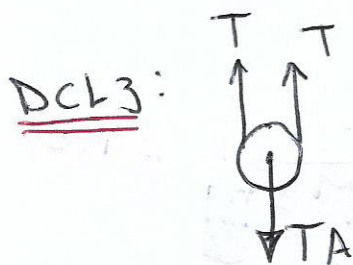


DCL 1



$$T_A - Mg = M\ddot{x}_2 \quad (3)$$

Notar que $T_A \neq T$



$$\left. \begin{aligned} 2T - T_A &= m_c \ddot{x} \\ m_c &= 0 \end{aligned} \right\} \Rightarrow 2T = T_A \quad (4)$$

$$(*) \Rightarrow \pi r + l + x_1 + 2x_2 = L$$

$$\Rightarrow \Delta x_1 + 2\Delta x_2 = 0 \Rightarrow \dot{x}_1 + 2\dot{x}_2 = 0 \Rightarrow \dot{x}_1 = -2\dot{x}_2 \quad (5)$$

L, l, r son constantes cualquiera
solo viven por la condición geométrica!!

De lo anterior tenemos que:

$$(1) \quad T - \sin(\alpha)mg = m\ddot{e}_1 = -2m\ddot{e}_2$$

$\xrightarrow{\text{USando (5)}}$

$$(3) \quad TA - Mg = M\ddot{e}_2 \Rightarrow 2T - Mg = M\ddot{e}_2$$

$\xrightarrow{\text{USando (4)}}$

$$\begin{array}{l} T - \sin(\alpha)mg = -2m\ddot{e}_2 \\ 2T - Mg = M\ddot{e}_2 \end{array}$$

Sistema de ecuación
a resolver!!

$$\Rightarrow -2T + 2mg \sin(\alpha) = 4m\ddot{e}_2$$
$$2T - Mg = M\ddot{e}_2$$

$$2mg \sin(\alpha) - Mg = (4m + M)\ddot{e}_2$$

$$\ddot{e}_2 = \frac{2mg \sin(\alpha) - Mg}{4m + M}$$

$$\ddot{e}_1 = \frac{-2(2mg \sin(\alpha) - Mg)}{4m + M}$$

ps1(5)

Por otro lado:

$$TA = Mg + M\ddot{e}_2 \quad \text{reemplazando la ec. (3)}$$

$$\Rightarrow TA = Mg + M \left(\frac{2mg \sin(\alpha) - Mg}{4m + M} \right)$$

$$\Rightarrow T_A = \frac{2mMg(2 + \sin\alpha)}{4m + M} \quad \sim \rightarrow \text{Se obtiene con un poco de Algebra}$$

$$\Rightarrow T = \frac{mMg(2 + \sin\alpha)}{4m + M} \quad \text{por (4)}$$

b) ACA MÁS que Dibujos
Se pedia una ecuación!!

$$\alpha = 0^\circ \quad Q_2 = \frac{-Mg}{4m + M} ; Q_1 = \frac{2Mg}{4m + M}$$

$$T_A = \frac{4mMg}{4m + M} ; T = \frac{2mMg}{4m + M}$$

$$\alpha = 90^\circ \quad Q_2 = \frac{2mMg - Mg}{4m + M} ; Q_1 = \frac{2(Mg - 2mMg)}{4m + M}$$

$$T_A = \frac{6mMg}{4m + M} ; T = \frac{3mMg}{4m + M}$$

bastaba con tener 1 aceleración, tensión pero como
lo voy a tener puntaje completo!!