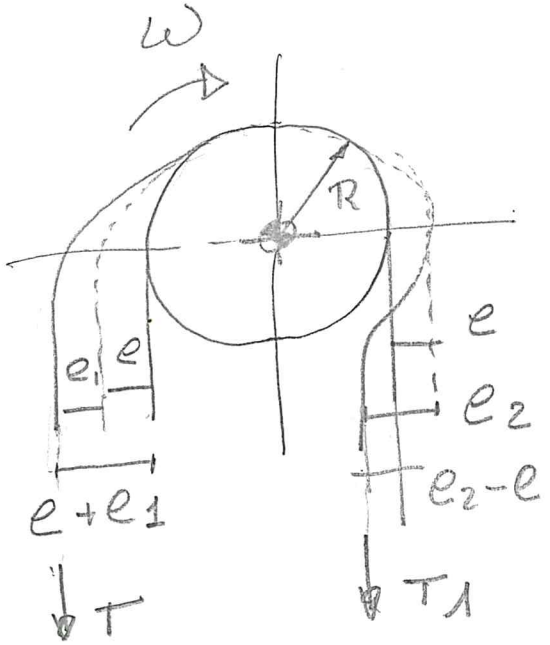
$$T(R+e+e_1) =$$

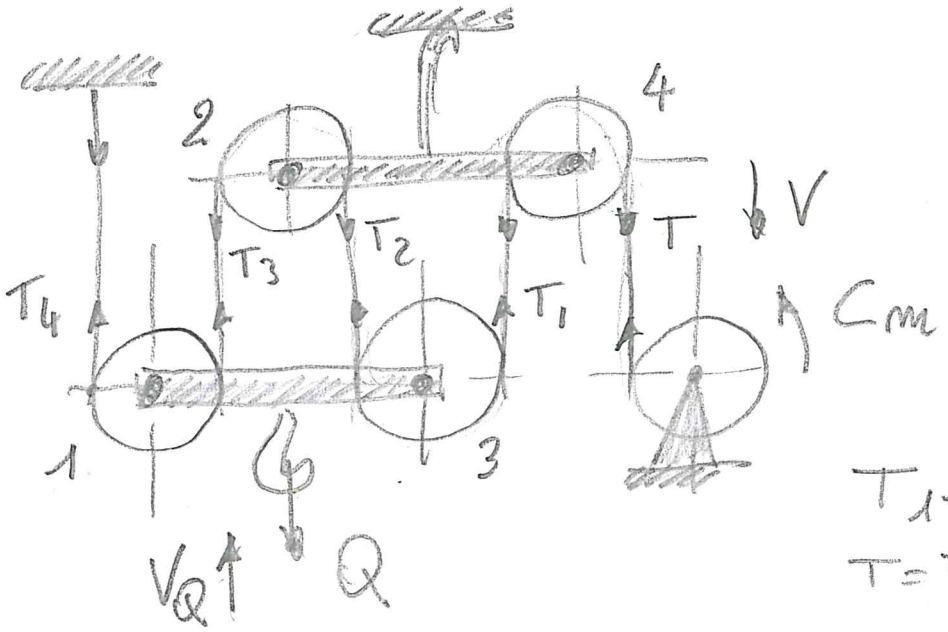
$$= T_1(R+e-e_2)$$

$$\eta = \frac{T_1}{T}$$

$$\frac{T_1}{T} = \left(\frac{R+e-e_2}{R+e+e_1}\right)$$



PARANCO



$T_1+T_2+T_3+T_4-Q=0$

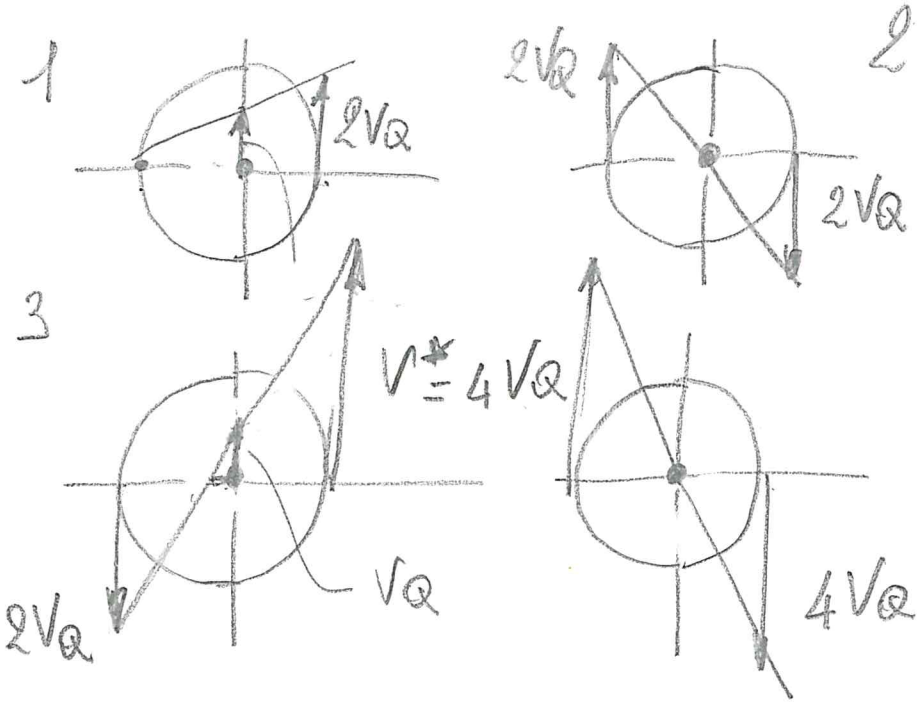
$T=T_1=T_2=T_3=T_4$

$4T=Q$

$T=Q/4$

$\eta=1$ $\quad TV=QV_Q$

$\eta=\dfrac{QV_Q}{TV}$ $\quad 4V_Q=V$



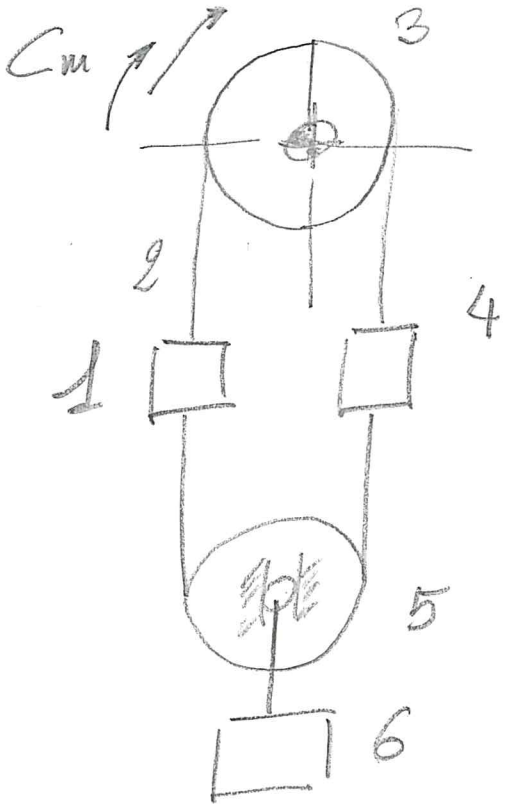
$V_1 = 1\,m/s$ COST

$m_1 = 600\,kg$

$m_4 = 300\,kg$

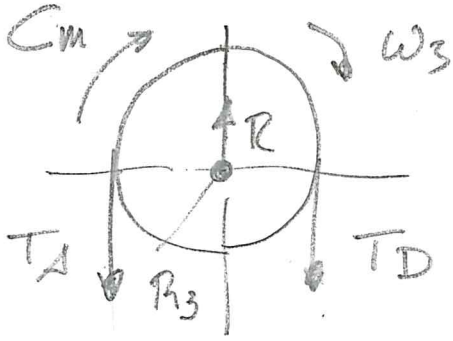
$m_6 = 1500\,kg$

$R_3 = R_5 = 0{,}3\,m$

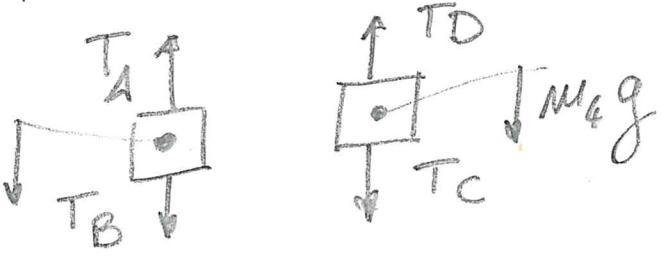


$$\omega_3 = V/R_3 = 3{,}33 \ \frac{rad}{s}$$

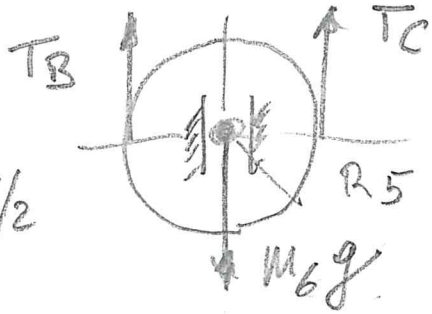
$$\begin{cases} T_A R_3 - C_m - T_D R_3 = 0 \\ T_A - m_1 g - T_B = 0 \\ T_D - m_4 g - T_C = 0 \\ T_B + T_C - m_6 g = 0 \\ T_B R_5 - T_C R_5 = 0 \end{cases}$$



V ↑



$T_A \ C_m \ T_D \ T_B \ T_C$



$T_B = T_C$

$2T_B = m_6 g$; $T_B = T_C = 14715/2$

$T_B = T_C = 7357{,}5\,N$

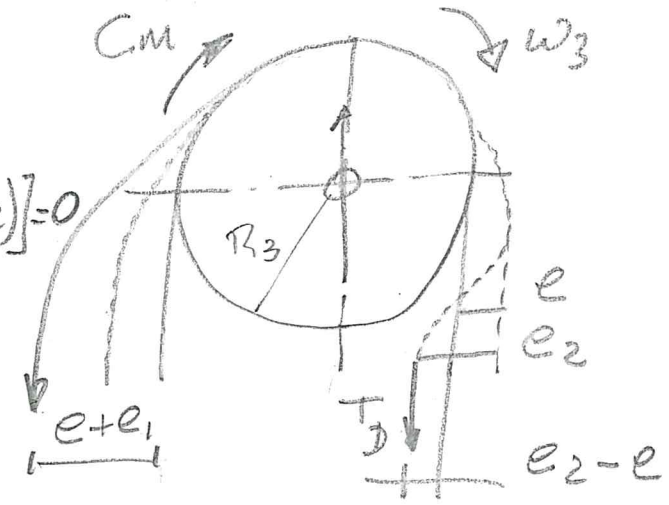
$T_D = T_C + m_4 g = 10300{,}5\,N$

$T_A = T_B + m_1 g = 13243\,N$

$C_m = |T_1 - T_D| R_3 = 882{,}75\,Nm$; $W = C_m \omega_3 \simeq 2940\,W$

$\frac{T_A}{T_D} = e^{fa\theta^*}$; $fa = \frac{1}{\theta^*} \ln \frac{T_A}{T_D} = 0{,}$

$$\omega_3 = V / [R_3 + (e_1 + e)]$$



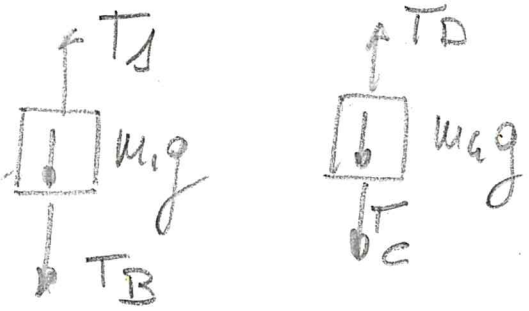
$$T_A [R_3 + (e_1 + e)] - C_m - T_D [R_3 - (e_2 - e)] = 0$$

$$T_A - m_1 g - T_B = 0$$

$$T_D - m_4 g - T_C = 0$$

$$T_B + T_C - m_6 g = 0$$

$$T_B [R_5 - (e_2 - e)] - T_C [R_5 + (e_1 + e)] = 0$$

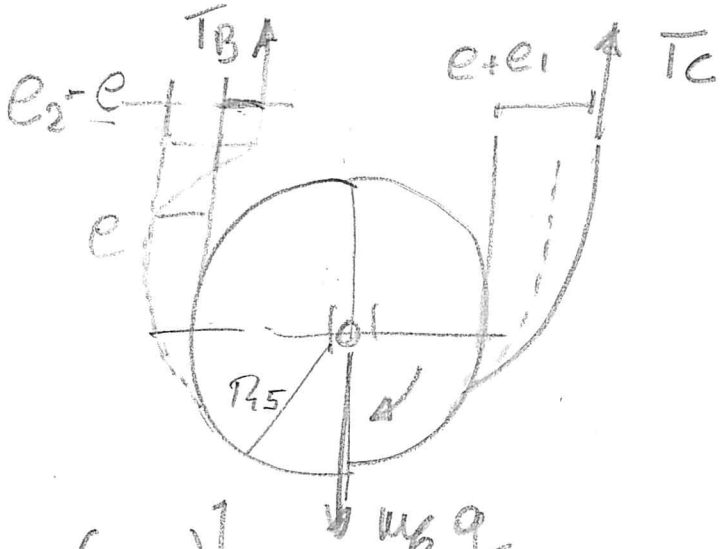


$$T_C = T_B \frac{[R_5 - (e_2 - e)]}{[R_5 + (e_1 + e)]} = T_B A$$

$$T_B = m_6 g / (1 + A)$$

$$T_D = m_4 g + m_6 g \frac{A}{1+A}$$

$$T_A = m_1 g + m_6 g \frac{1}{1+A}$$



$$C_m = \left(m_1 g + m_6 g \frac{1}{1+A} \right) [R_3 + (e_1 + e)] -$$

$$- \left(m_4 g + m_6 g \frac{A}{1+A} \right) [R_3 - (e_2 - e)]$$

$$W = C_m \omega_3$$

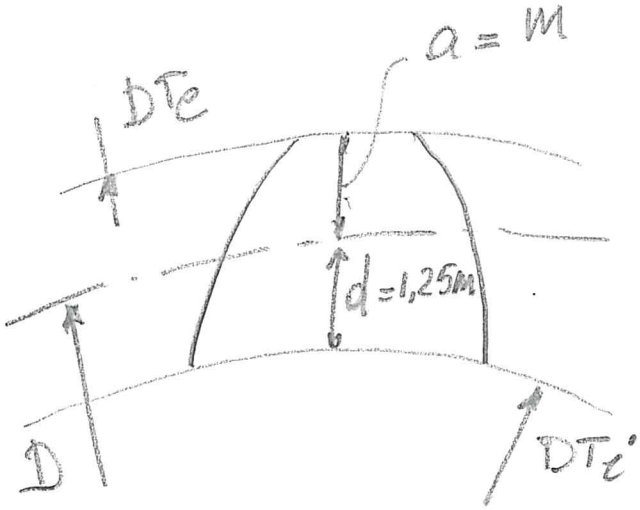
$$fa = \frac{1}{D^*} \lg \frac{T_A}{T_D}$$

$i = \frac{\omega_1}{\omega_2} = 3$

$z_1 = 30$

$D_{Te_1} = 0{,}128\,m$

$p = 12{,}57\,mm = 0{,}01257\,m$



m, D, D_{Ti} 1, 2

$D_{Te_2}, z_2, h = D_1 + D_2$

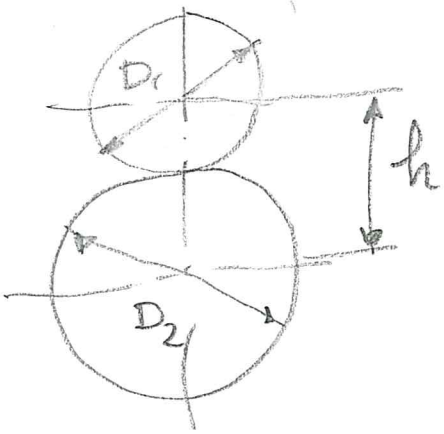
$i = \frac{\omega_1}{\omega_2} = \frac{z_2}{z_1}$ $\quad z_2 = i z_1 = 90$ DENTI

$m = \frac{p}{\pi} = \frac{D_1}{z_1} = \frac{D_2}{z_2}$ $\quad D_{Te} = D + m$

$m = \frac{12{,}57}{\pi} = 4{,}0\,mm$

$D_{Te_1} - 2m = D_1$

$128 - 2 \cdot 4 = 120\,mm = D_1$



$i = \frac{\omega_1}{\omega_2} = \frac{z_2}{z_1} = \frac{D_2}{D_1}$

$D_2 = i D_1 = 360\,mm$

$D_{Ti'_1} = D_1 - (1{,}25\,m) \cdot 2 = 110\,mm$

$D_{Ti_2} = D_2 - (1{,}25\,m) \cdot 2 = 350\,mm$

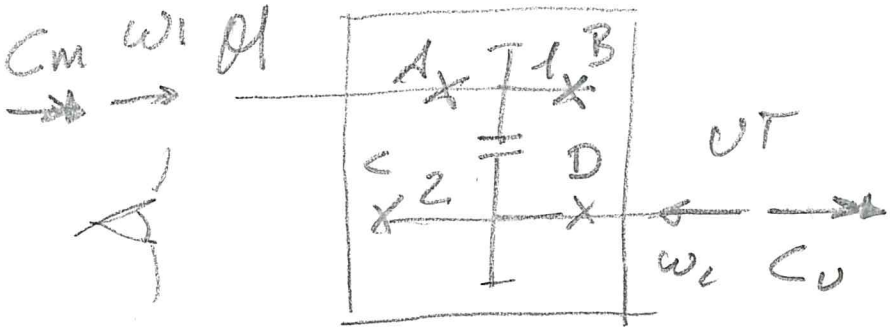
$D_{Te_2} = D_2 + 2(m) = 368\,mm$

$h = \frac{D_1 + D_2}{2} = 240\,mm$

$C_m = 150\ Nm$

$\alpha = 20°$

$F_{1/2} = F_{2/1} = F$



$r_1 = \frac{D_1}{2} = 60.10^{-3}\ m$

$\rho_1 = r_1 \cos\alpha$

$F \cdot \rho_1 = C_m$

$$F = \frac{C_m}{r_1 \cos\alpha}$$

$$F = \frac{150}{60.10^{-3} \cos 20°} = 2660,4\ N$$