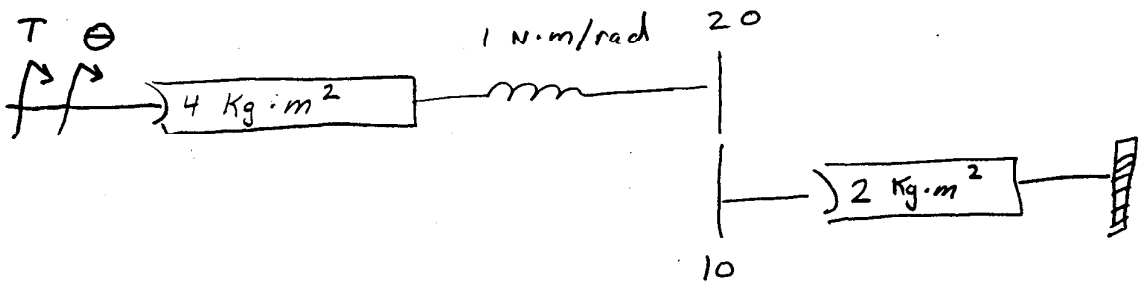
ECE 365 SS00 Q5

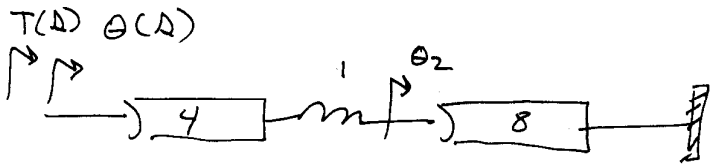
NAME: KEY

Honor Code:

FIND $\frac{\Theta(\Omega)}{T(\Omega)}$ for the following.



PROJECT to Top:



(eq 1) $\Theta(\Omega)[4\Omega^2 + 1] + \Theta_2(\Omega)[-1] = T(\Omega)$

(eq 2) $\Theta_2(\Omega)[8\Omega^2 + 1] + \Theta(\Omega)[-1] = 0$

(eq2) says $\Theta_2 = \frac{\Theta(\Omega)}{8\Omega^2+1}$

$\therefore \quad \Theta(\Omega)\left[4\Omega^2+1\right] - \Theta(\Omega)\left[\frac{1}{8\Omega^2+1}\right] = T(\Omega)$

$\Theta(\Omega)\left[\frac{32\Omega^4+12\Omega^2}{8\Omega^2+1}\right] = T(\Omega)$

$$\boxed{\frac{\Theta(\Omega)}{T(\Omega)} = \frac{8\Omega^2+1}{32\Omega^4+12\Omega^2}}$$