You have a DC motor and a perfect gearbox with the following equations and parameters:

$$J\ddot{\theta} + v\dot{\theta} = k_t I - T_l/n$$

Let θ_o be the position at the output we want to control, the motor is rigidly connected to the output:

$$\theta = n\theta_o$$

and consider no load ($T_l = 0$). What is the transfer function between of the system:

$$\frac{\theta_o}{I} = \cdots$$