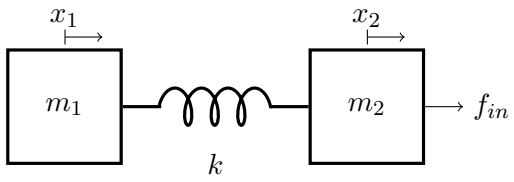
EENG307: Intro to Feedback Control

Fall 2020

Homework Assignment #3

Quiz #6

Quiz Question Wednesday: Find the transfer function for the following mechanical system with force input f_{in} and output x_2.



(a)

$$\frac{X_2(s)}{F_{in}(s)} = \frac{m_1 s^2 + k}{m_1 m_2 s^3 + k(m_1 - m_2)s}$$

(b)

$$\frac{X_2(s)}{F_{in}(s)} = \frac{m_1 s^2 + k}{m_1 m_2 s^4 + k(m_1 + m_2)s^2}$$

(c)

$$\frac{X_2(s)}{F_{in}(s)} = \frac{m_2 s^2}{m_1 m_2 s^4 + k(m_1 - m_2)s^2}$$

(d)

$$\frac{X_2(s)}{F_{in}(s)} = \frac{m_2 s^2 - k}{m_1 m_2 s^4 + k(m_1 + m_2)s^2}$$

(e)

$$\frac{X_2(s)}{F_{in}(s)} = \frac{m_1 s^2 - k}{m_1 m_2 s^4 - (m_1 + m_2)s^2}$$