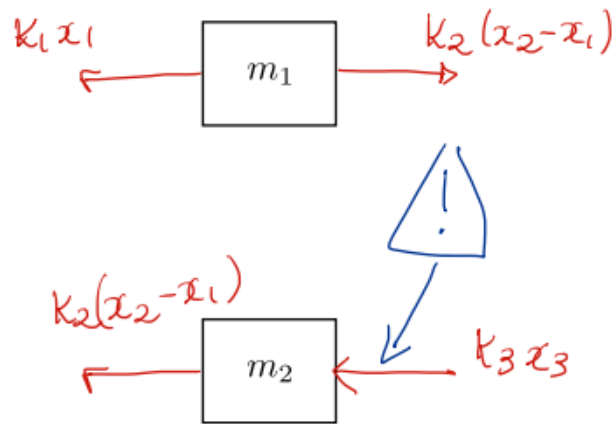
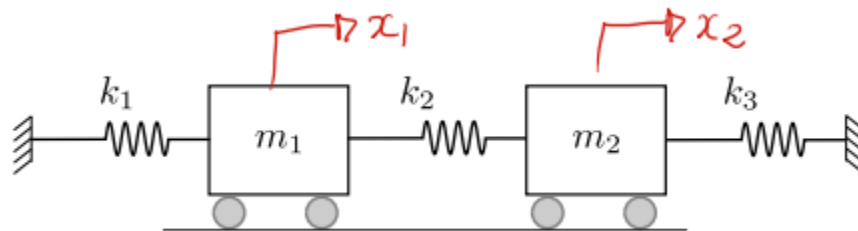


Homework 1 (solution)

1.



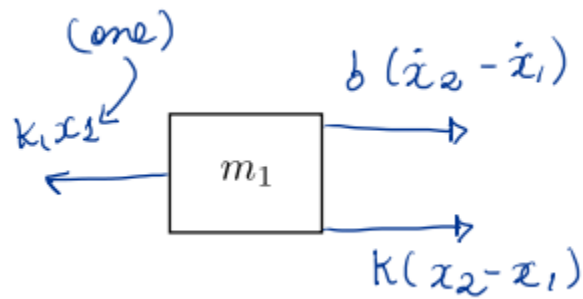
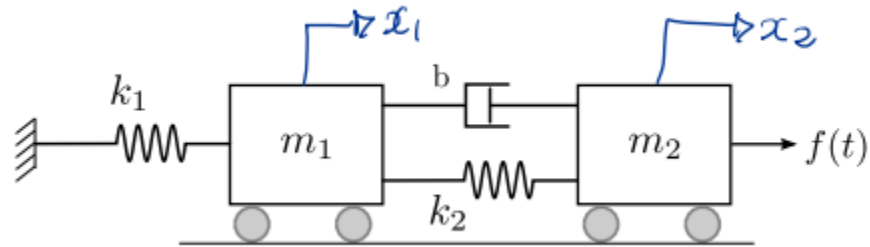
Mass 1

$$k_2(x_2 - x_1) - k_1 x_1 = m_1 \ddot{x}_1$$

Mass 2

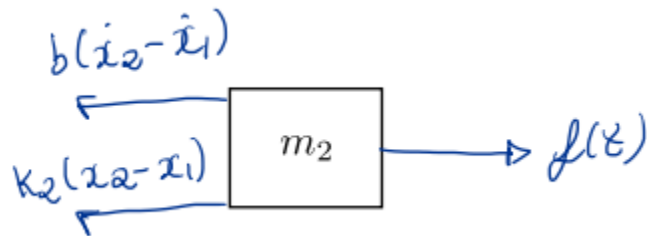
$$-k_2(x_2 - x_1) - k_3 x_2 = m_2 \ddot{x}_2$$

2.



Mass 1

$$b(\dot{x}_2 - \dot{x}_1) + k(x_2 - x_1) - k_1 x_1 = m_1 \ddot{x}_1$$



Mass 2

$$f(t) - b(\dot{x}_2 - \dot{x}_1) - k_2(x_2 - x_1) = m_2 \ddot{x}_2$$

↓ \mathcal{L}

$$F(s) - b[X_2(s) - X_1(s)]s - k_2[X_2(s) - X_1(s)] = m_2 X_2(s) s^2$$