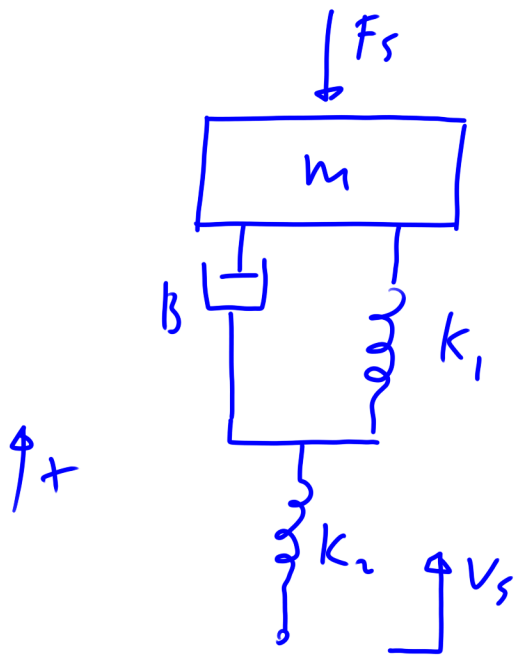
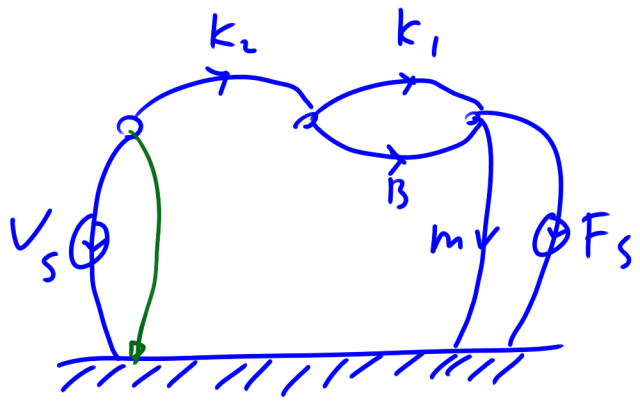
RW 13.10





$$\frac{V_m}{F_s}$$

$$F_m = F_s \frac{1/Z_m}{1/Z_m + 1/Z_{KB}}$$

$$V_m = F_m Z_m$$

$$\frac{V_m}{Z_m} = F_s \frac{1/Z_m}{1/Z_m + 1/Z_{KB}}$$

$$V_m = F_s \frac{1}{1/Z_m + 1/Z_{KB}}$$

$$Z_{KB} = Z_{k_1} + \frac{1}{\frac{1}{Z_{k_2}} + \frac{1}{Z_B}}$$

$$= \frac{s}{k_1} + \frac{1}{\frac{k_2}{s} + B}$$

$$= \frac{s}{k_1} + \frac{s}{k_2 + Bs} = \frac{k_2 s + Bs^2 + k_1 s}{k_1 k_2 + k_1 B s}$$

$$V_m = F_s \frac{1}{ms + \frac{k_1 k_2 + k_1 B s}{k_2 s + Bs^2 + k_1 s}}$$

$$= F_s \frac{k_2 s + Bs^2 + k_1 s}{m k_2 s^2 + m B s^3 + m k_1 s^2 + k_1 k_2 + k_1 B s}$$

$$\frac{V_m}{F_s} = \frac{k_2 s + Bs^2 + k_1 s}{m k_2 s^2 + m B s^3 + m k_1 s^2 + k_1 k_2 + k_1 B s}$$