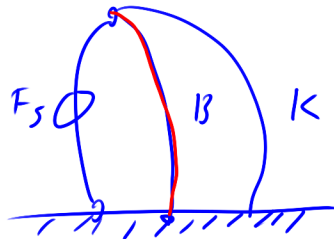


$$\frac{d^2 y}{dt^2} + 3 \frac{dy}{dt} + 6y = 2u(t)$$

$$s^2 Y(s) + 3s Y(s) + 6 Y(s) = 2U(s)$$

$$\frac{Y(s)}{U(s)} = H(s) = \frac{2}{s^2 + 3s + 6} = \frac{Y(s)}{U(s)}$$

$$\begin{aligned} 2U(s) &= (s^2 + 3s + 6) Y(s) \\ &= (s^2 Y(s) + 3s Y(s) + 6 Y(s)) \\ &= \frac{d^2 y}{dt^2} + 3 \frac{dy}{dt} + 6y \quad \checkmark \end{aligned}$$



State F_K

output $V_K = V_B = V$

$$H(s) = \frac{s+1}{s^2 + 2s + 3}$$

poles roots denominator

roots of $s^2 + 2s + 3$