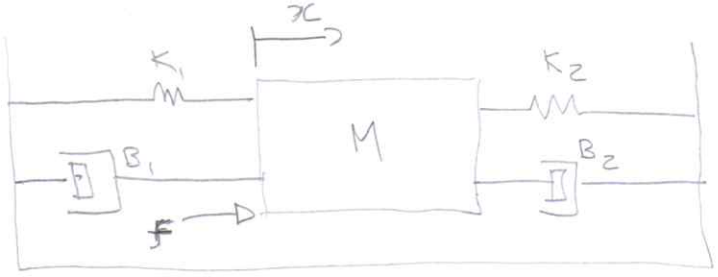
2g)

$\frac{X(s)}{F(s)}$



Funções

$x - x(t)$
$f - f(t)$
$X - X(s)$
$F - F(s)$

$F_R = Ma$

$$M\ddot{x} = -K_1 x - B_1 \dot{x} - K_2 x - B_2 \dot{x} + f$$

$$F = (s^2 M + sB_1 + sB_2 + K_1 + K_2) X$$

$$= (s^2 M + (B_1 + B_2)s + (K_1 + K_2)) X$$

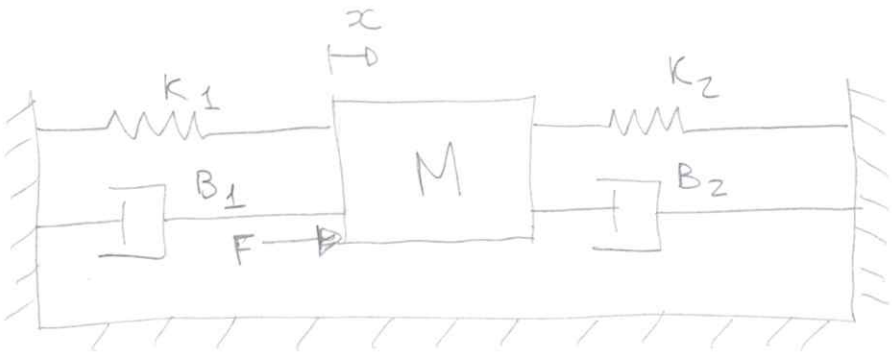
$$\frac{X}{F} = \frac{1}{s^2 M + (B_1 + B_2)s + (K_1 + K_2)}$$

✓

Practica

2 g)

$G(s) = \frac{X(s)}{F(s)}$



$$\sum F_R = M \ddot{x}_{(t)}$$

$$F_{(t)} - K_1 x - B_1 \dot{x} - K_2 x - B_2 \dot{x} = M \ddot{x}$$

$\mathcal{L}$; valores iniciales nulos

$$F_{(s)} - K_1 X_{(s)} - sB_1 X_{(s)} - K_2 X_{(s)} - sB_2 X_{(s)} = s^2 M X_{(s)}$$

$$F_{(s)} = \left(s^2 M + K_1 + sB_1 + K_2 + sB_2\right) X_{(s)}$$

$$\frac{X_s}{F_{(s)}} = \frac{1}{s^2 M + sB_1 + sB_2 + K_1 + K_2}$$