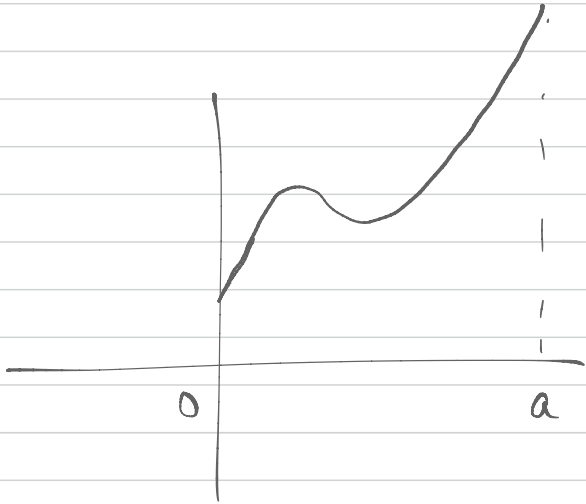
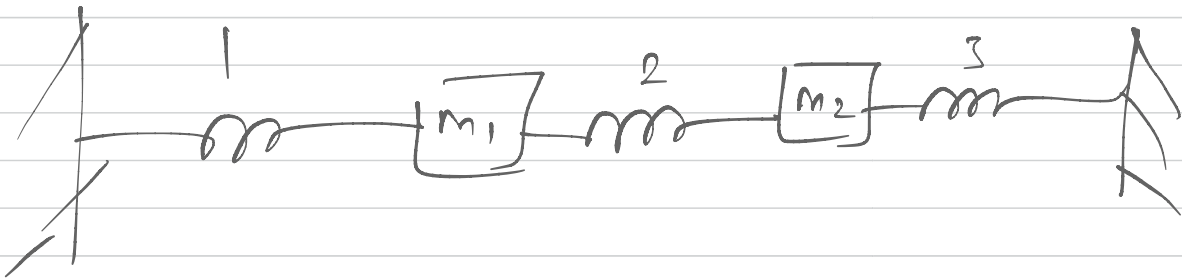
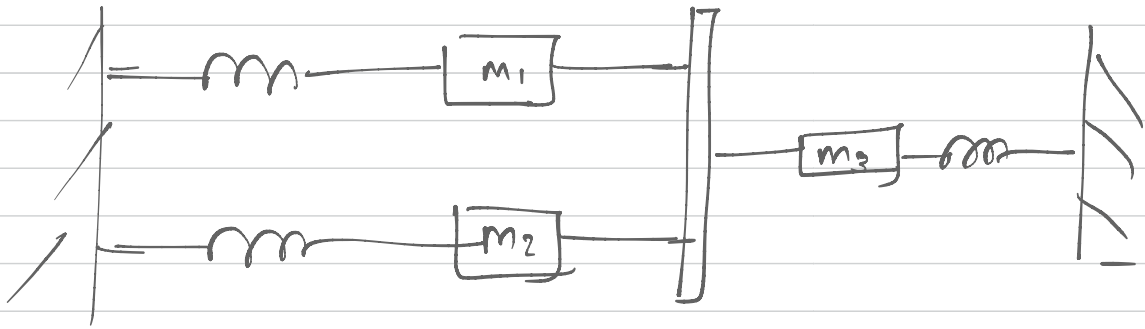


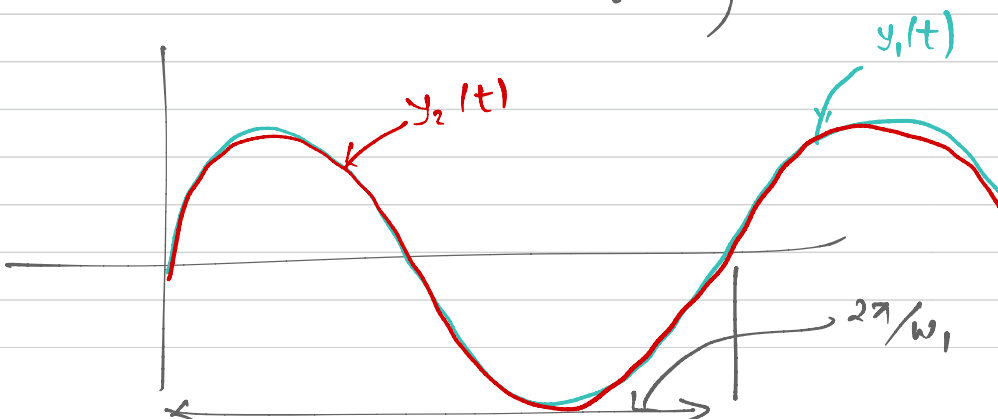
Lecture 22



$$f: [0, a] \rightarrow \mathbb{R} = (-\infty, \infty)$$



$$u_1(t) = \sin(\omega_1 t) \begin{bmatrix} 1 \\ 1 \end{bmatrix}$$



$$a e^{\lambda t} = f(t)$$

$$f_1(x_1, x_2) = 0$$

$$f_2(x_1, x_2) = 0$$

x^0

$$A(x^0) x' = b(x^0)$$

$$A(x^0) = \begin{bmatrix} \frac{\partial f_1}{\partial x_1}(x^0) & \frac{\partial f_1}{\partial x_2}(x^0) \\ \frac{\partial f_2}{\partial x_1}(x^0) & \frac{\partial f_2}{\partial x_2}(x^0) \end{bmatrix}$$

$$e = \begin{bmatrix} e_1(x) \\ e_2(x) \end{bmatrix}, \quad \boxed{\frac{de}{dx} = A e}$$

$$f_1 = e^{\lambda_1 x} \begin{bmatrix} a \\ b \end{bmatrix}$$

$$f_2 = e^{\lambda_2 x} \begin{bmatrix} c \\ d \end{bmatrix}$$