

Problema 1

$$e = Q/C \quad df = (dh) L B = vLB \quad e = df/dt = vLB$$

$$vLB = Q/C \quad BL(dv/dt) = i/C \quad i = CBL(dv/dt)$$

Equazione del moto della barretta $a = dv/dt = g - iLB/m$ e sostituendo i:
 $a = (dv/dt) = g/(1 + CB^2L^2/m)$

$$v^2 = 2aH$$

$$e = \text{SQRT}(2aH)LB \quad \text{con } a = g/(1 + CB^2L^2/m)$$

Problema 2

$$n = N/L \quad L = m_0 n^2 L (pr^2) \quad L = 5.9 \text{ mH}$$

$$e = L dI/dt, \quad I = -5000 t + 500 \cdot 10^{-3}$$

$$e = L dI/dt = 29.5 \text{ V}$$

Problema 3

$$Q_1 = C f_1 \quad Q_2 = C f_2 \quad DF_{AB} = (Q_1 + Q_2)/2C \quad DF_{AB} = 1/2(f_1 + f_2)$$

$$W_i = 1/2 C f_1^2 + 1/2 C f_2^2 \quad W_f = 1/4(2C)[1/2(f_1 + f_2)]^2 \quad W_i - W_f = 1/4 C (f_1 - f_2)^2$$