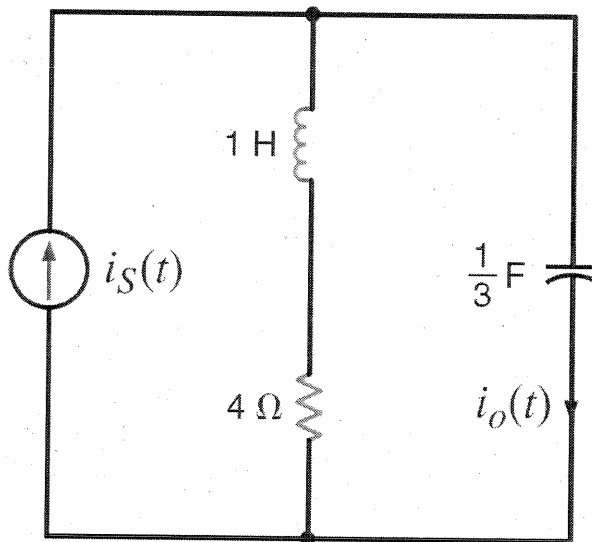
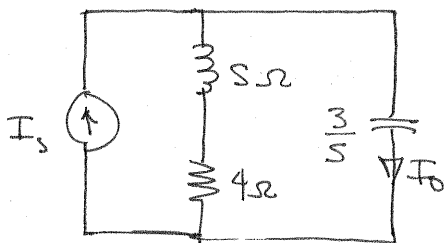


**14FE-3** The initial conditions in the circuit in Fig. 14PFE-3 are zero. Find the transfer function  $\mathbf{I}_o(s)/\mathbf{I}_s(s)$ , and determine the type of damping exhibited by the circuit.



**Figure 14PFE-3**

**SOLUTION:**



$$\frac{I_o}{I_s} = \frac{3/s}{3/s + 4 + s} = \frac{3}{s^2 + 4s + 3}$$

$$\boxed{\frac{I_o}{I_s} = \frac{3}{s^2 + 4s + 3}}$$

Char equation:  $s^2 + 4s + 3$

Poles at  $s = -2 \pm 1 = \begin{cases} -1 \\ -3 \end{cases}$

Poles are real and unequal,  
network is overdamped