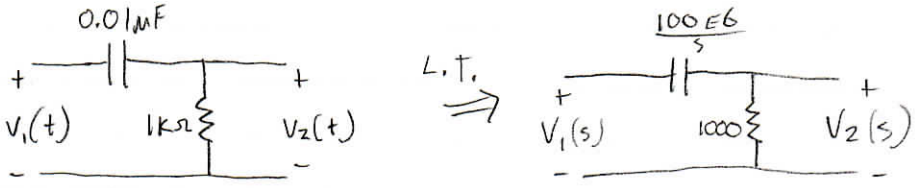
Andy Roggenbuck
EEET 321
Ch. 7 Homework Set 1

7-2



$$V_2(s) = V_1(s) \cdot \frac{1000}{\frac{100E6}{s} + 1000} = V_1(s) \cdot \frac{1000s}{100E6 + 1000s} = V_1(s) \cdot \frac{s}{100E3 + s}$$

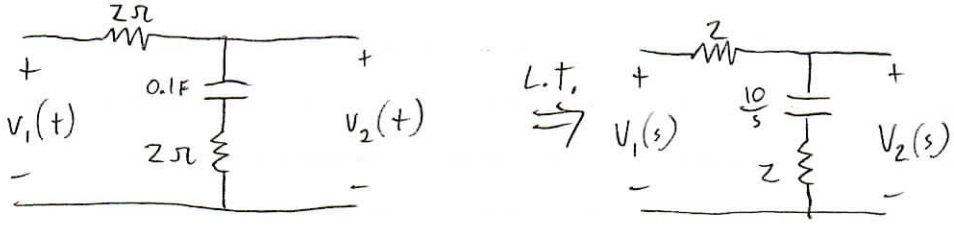
$$G(s) = \frac{s}{100E3 + s}$$

7-4

$$V_2(s) = V_1(s) \cdot \frac{0.1s}{10E3 + 0.1s} = V_1(s) \cdot \frac{s}{100E3 + s}$$

$$G(s) = \frac{s}{100E3 + s}$$

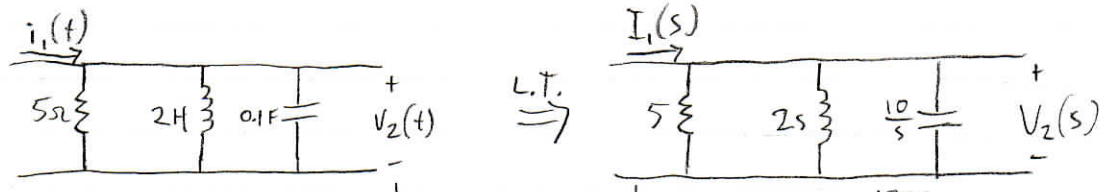
7-8



$$V_2(s) = V_1(s) \cdot \frac{10/s + 2}{10/s + 4} = V_1(s) \cdot \frac{10 + 2s}{10 + 4s} = V_1(s) \cdot \frac{5 + s}{5 + 2s}$$

$$G(s) = \frac{5 + s}{5 + 2s}$$

7-10



$$\text{total impedance} = \frac{1}{\frac{1}{5} + \frac{1}{2s} + \frac{s}{10}} = \frac{1}{\frac{20s + 50 + 10s^2}{100s}} = \frac{100s}{10s^2 + 20s + 50} = \frac{10s}{s^2 + 2s + 5}$$

$$V_2(s) = I_1(s) \cdot \frac{10s}{s^2 + 2s + 5}$$

$$G(s) = \frac{V_2(s)}{I_1(s)} = \frac{10s}{s^2 + 2s + 5}$$