Nise Editions => 4th is noted as Ed4; the 5th is noted as Ed5; if no note then they are the same.

Primary Matlab commands of interest: syms, laplace, ilaplace, simple, simplify, pretty, inv, numden, sym2poly, tf, step.

Part 1:
Using Matlab complete homework problems: 2-5, 2-6.

Part 2:
1) Using Figure P2.6 (pg 113 (Ed4)/ pg 96 (Ed5)) transform the circuit into the Laplace domain.

2) Write the Laplace domain based mesh current equations for this circuit. (Hint: Segregate any V(s) terms on one side -- away from the I_1(s), I_2(s), I_3(s) terms on the other.)

3) Collect these equations into a matrix equation: \[ A \cdot [I_1; I_2; I_3] = B \]

4) In Matlab create the matrix A from step 3. Knowing that the current flowing through the 4 ohm resistor is \( v_o(t) = R \cdot i(t) \), solve for the transfer function from \( v(t) \) to \( v_o(t) \) in the Laplace space, i.e. \( G(s) = \frac{V_o(s)}{V(s)} \).

5) Given the transfer function \( G(S) \) plot the time domain simulation of the system given a unit step input of magnitude 10 (Hint you could use the following commands => numden, sym2poly, tf, step.)