1. Find $R_{eq}$, the equivalent resistance of the circuit shown below.

![Circuit Diagram 1](image1)

2. Find $R_{eq}$, the equivalent resistance of the circuit shown below.

![Circuit Diagram 2](image2)

3. Find $R_{eq}$, the equivalent resistance of the circuit shown below.

![Circuit Diagram 3](image3)
4. Find $R_{eq}$, the equivalent resistance between points a and b for the circuit shown below.

5. Find $R_{eq}$, the equivalent resistance between points a and b for the circuit shown below.

6. Find the current, $i$, in the circuit shown below.
7. Find the voltage, $v_1$, in the circuit shown below.

![Circuit Diagram](image1)

8. Find the current, $i$, in the circuit shown below.

![Circuit Diagram](image2)

9. Find the voltage, $v_0$, and the current, $i$, in the circuit shown below.

![Circuit Diagram](image3)

10. The power absorbed by the 2Ω resistor is 32W. Determine the value of the current source, $I_s$.

![Circuit Diagram](image4)
11. The light bulb shown in the circuit below is rated at 120V, 0.75A. Calculate $V_s$ to make the light bulb operate at the rated conditions.

![Circuit Diagram](image)

12. An electric pencil sharpener rated at 240mW, 6V is connected to a 9V battery as shown. Calculate the value of the resistor $R_x$ needed to power the sharpener.

![Circuit Diagram](image)

13. The circuit shown below is to control the speed of a motor such that the motor draws currents of 5A, 3A, and 1A when the switch is at high, medium, and low positions, respectively. The motor can be modeled as a 20mΩ resistor. Determine $R_1$, $R_2$, and $R_3$.

![Circuit Diagram](image)
14. Complete the Lesson 1: Learning PSPICE Basics tutorial. Then, perform the DC bias analysis of the following circuit using PSPICE. Turn in the following two printouts:
   a. The circuit diagram with the node voltage and element currents displayed
   b. The circuit diagram with the power delivered to each element displayed
   Recall that these DC voltages, currents, and powers can be displayed using the “Enable Bias Voltage Display”, “Enable Bias Current Display”, and “Enable Bias Power Display” selections under the PSPICE menu.

![Circuit Diagram](image)

15. Use PSPICE to perform a transient analysis on the following circuit. Use VSIN for the sinusoidal voltage source and ISIN for the sinusoidal current source. Note that the frequency input into PSPICE is in Hz. Also, the offset voltage/current is zero. Print out a graph of the voltage \( v \) for \( 0 \leq t \leq .5 \) seconds. Specify an increment of .001 seconds between points so that you get a smooth curve. Use the two probe cursors to mark and display the voltage level at the minimum and maximum of the voltage waveform on your printout.

![Circuit Diagram](image)