1) A resistor has the following color bands: Yellow-Purple-Red-Gold. What is its resistance and tolerance?
   a) 4.7kΩ, 10%
   b) 4.7kΩ, 5%
   c) 47kΩ, 5%
   d) 2.7kΩ, 5%

2) For the resistor in question #1, what is the range of possible values?
   a) 4.23kΩ - 5.17kΩ
   b) 4.465kΩ - 4.935kΩ
   c) 44.65kΩ - 49.35kΩ
   d) 2.565kΩ - 2.835kΩ

3) A 1kΩ resistor has 3.3V across it. What is the current through the resistor?
   a) 3300 A
   b) 3.3 A
   c) 303 A
   d) 3.3 mA

4) A resistor has 1.5V across it, and 220mA through it. What is its resistance?
   a) 0.33 Ω
   b) 330 Ω
   c) 0.147 Ω
   d) 6.82 Ω

5) A 2A current source has 5V across it. How much power is it supplying?
   a) 0.4 W
   b) 2.5 W
   c) 20 W
   d) 10 W

6) A 2.7kΩ resistor dissipates 3W. What is the voltage across it?
   a) 1.11 mV
   b) 900 V
   c) 30 V
   d) 90 V

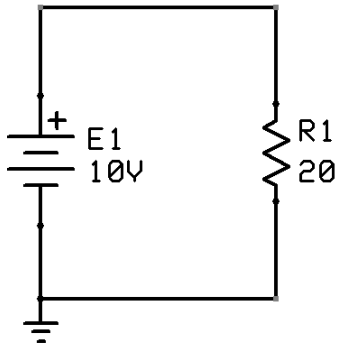

Figure 1

7) See figure 1. How much power is R_1 dissipating?
   a) 0.5 W
   b) 2 W
   c) 25 mW
   d) 5 W

8) See figure 1. How much power would R_1 dissipate if the polarity of E_1 was flipped?
   a) 0 W
   b) -2 W
   c) 5 W
   d) -5 W

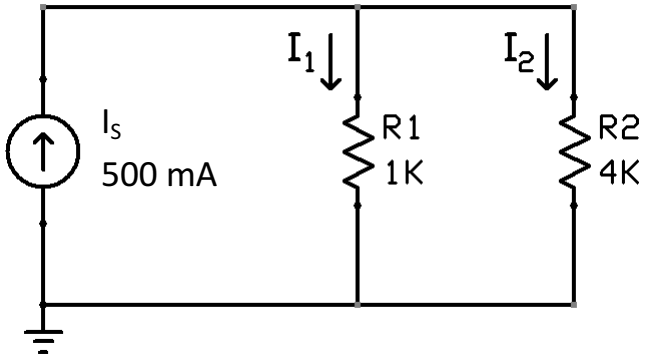

Figure 2

9) See figure 2. What is I_1?
   a) 500 mA
   b) 400 mA
   c) 250 mA
   d) 100 mA

10) See figure 2. What is I_2?
   a) 500 mA
   b) 400 mA
   c) 250 mA
   d) 100 mA

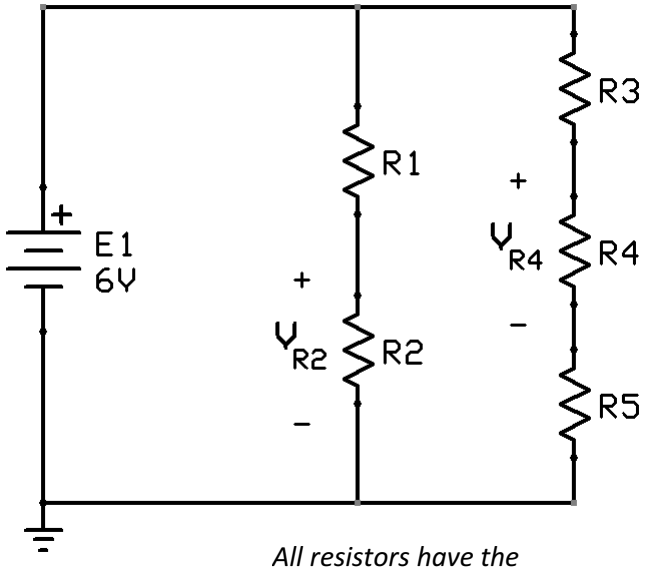

Figure 3 *All resistors have the same value.*

11) See figure 3. What is the voltage across R_2 (polarity as shown)?
   a) 1 V
   b) 2 V
   c) 3 V
   d) 6 V

12) See figure 3. What is the voltage across R_4 (polarity as shown)?
   a) 1 V
   b) 2 V
   c) 3 V
   d) 6 V

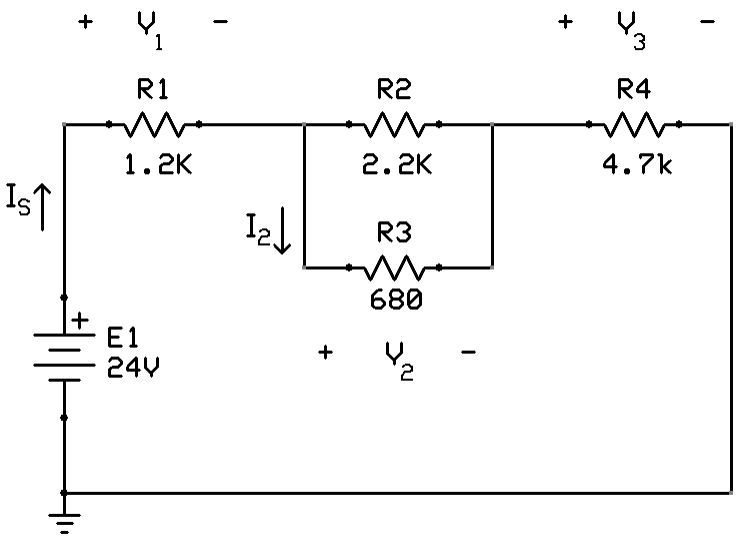

Figure 4

13) See figure 4. What is the voltage across R_2 (Polarity as shown)?

14) See figure 4. What is the value of I_2 (Direction as shown)?

15) See figure 5. What is the value of I_S (Direction as shown)?

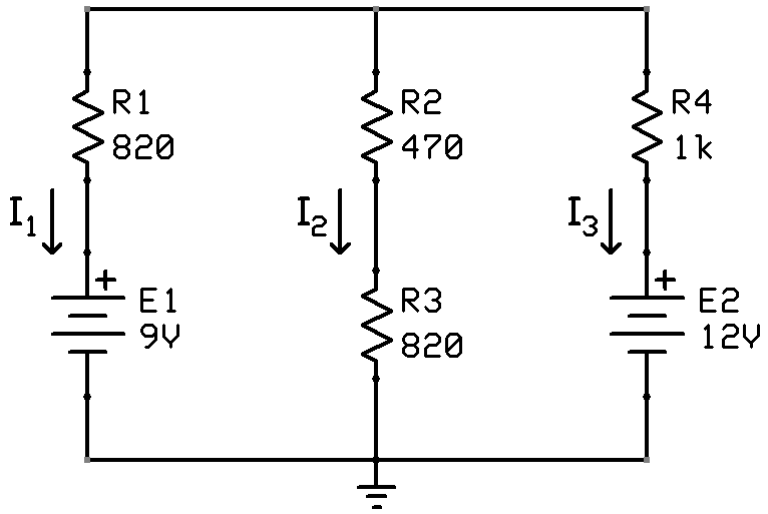

Figure 5

16) See figure 5. What are the values of I_1, I_2, and I_3?

17) See figure 5. How much total power is supplied by the two voltage sources?

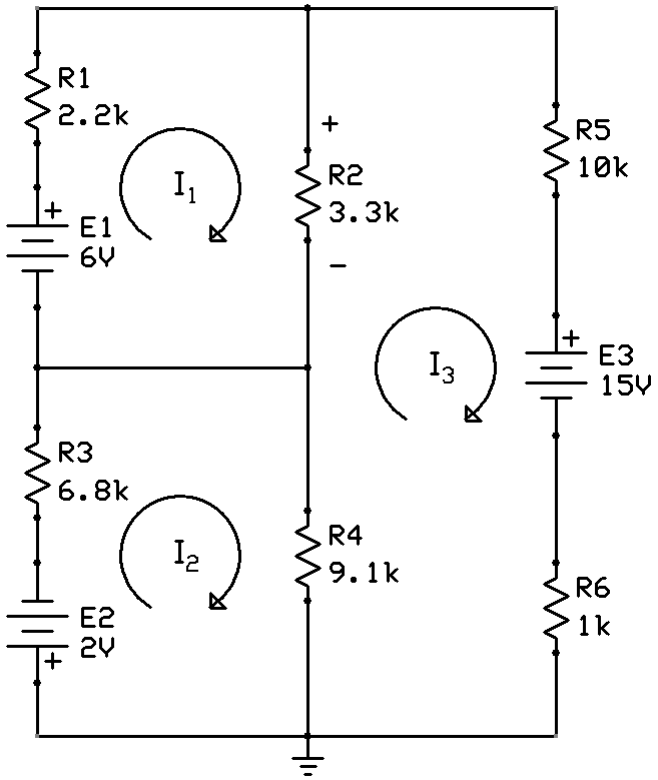

Figure 6

18) See figure 6. What is the value of I_1?

19) See figure 6. What is the voltage across R_2 (polarity as shown)?

20) See figure 6. How much power is dissipated by R_4?

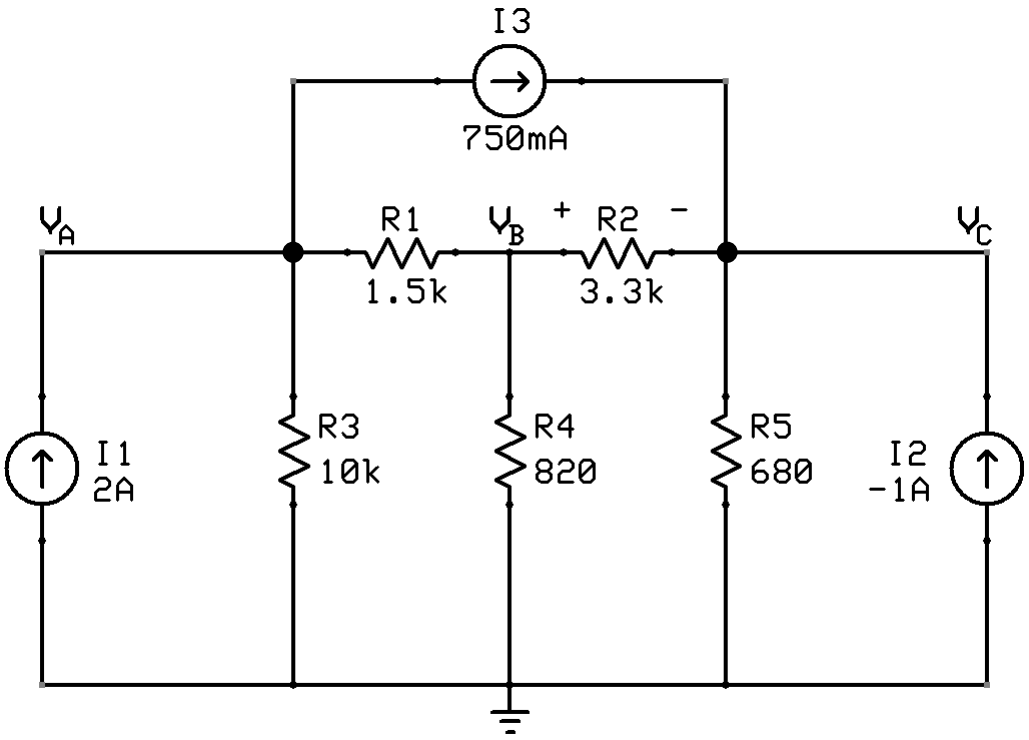

Figure 7

21) See figure 7. What is the voltage at V_C?

22) See figure 7. What is the voltage across R_2 (polarity as shown)?

23) See figure 7. How much power is supplied by I_3?

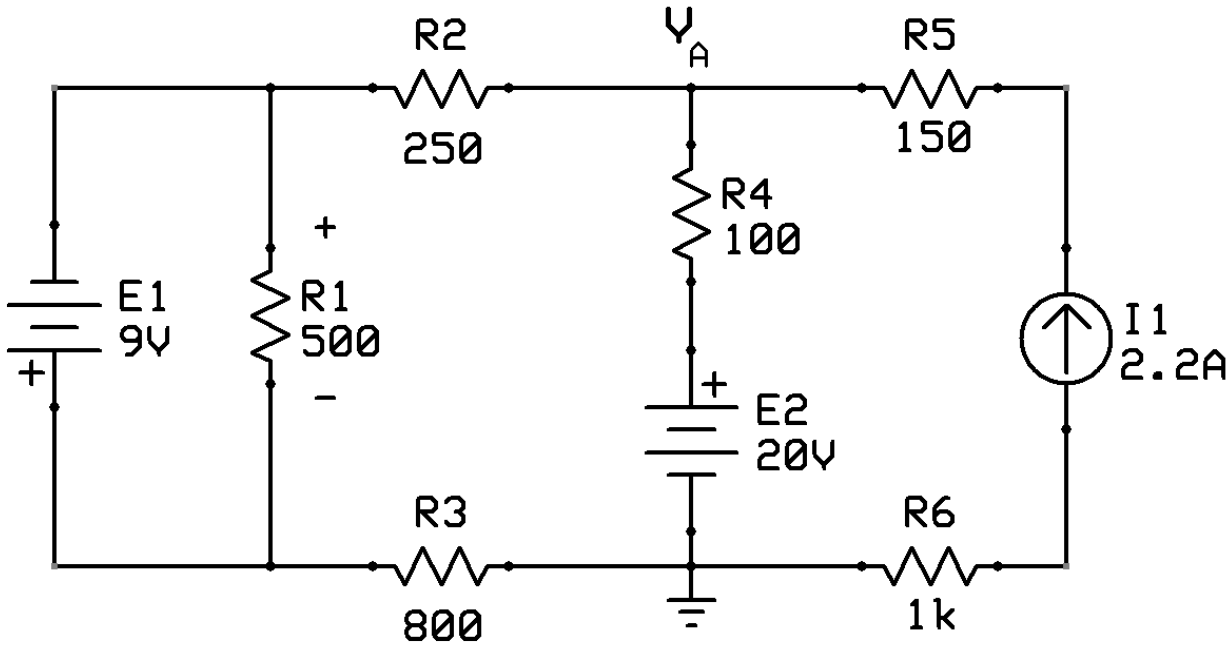

Figure 8

24) See figure 8. What is the voltage at V_A?

25) See figure 8. What is the voltage across R_1 (polarity as shown)?

26) See figure 8. How much power is supplied by I_1?

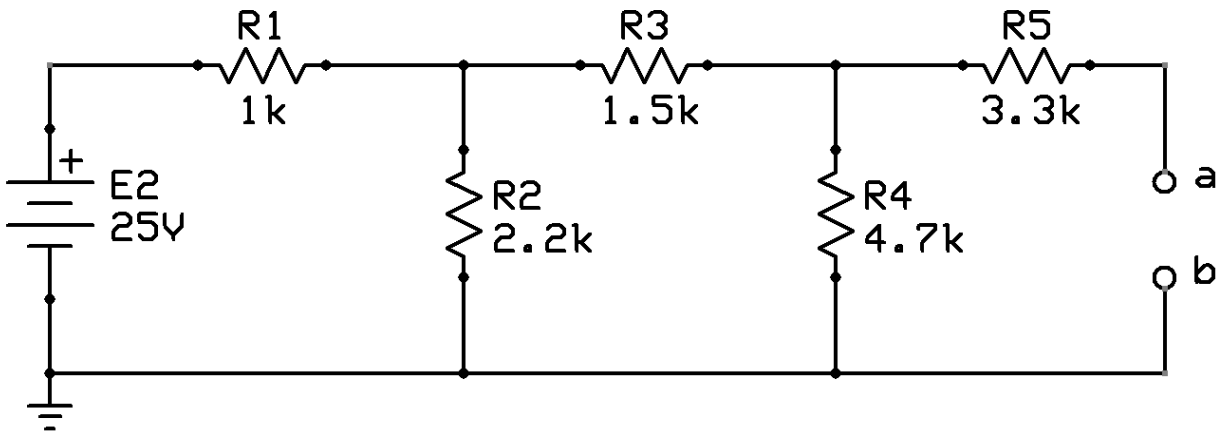

Figure 9

27) See Figure 9. For the Thevenin circuit external to points a and b, what is the Thevenin voltage?

28) What is the Thevenin resistance?

29) If this Thevenin circuit were converted to a current source, what would be the value of that current source?

30) What resistance would dissipate the maximum amount of power when connected to this network? What is the maximum power dissipated?

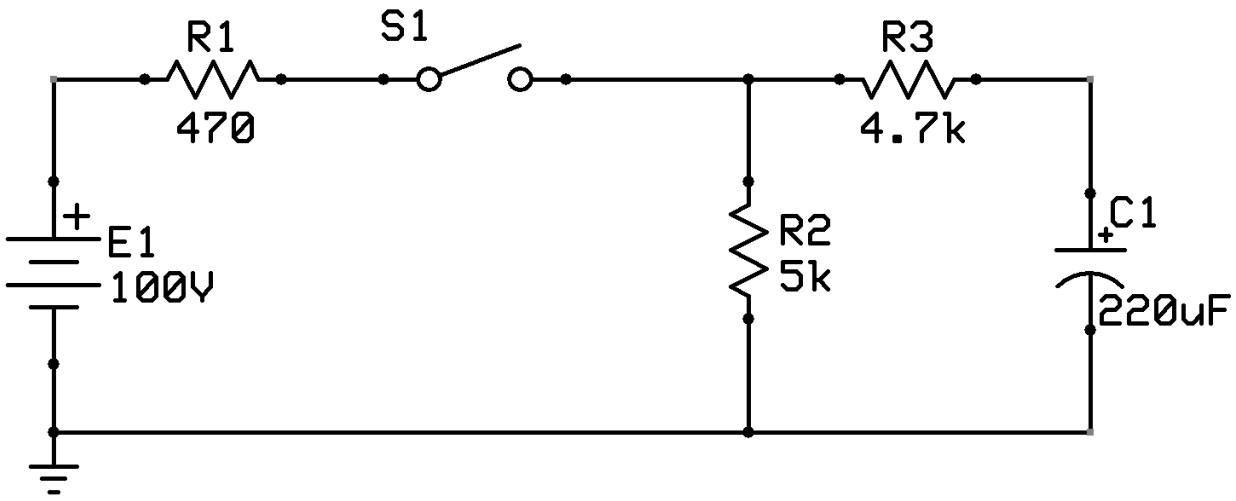

Figure 10

31) See Figure 10. What is the time constant when charging the capacitor?

32) See Figure 10. What is the time constant when discharging the capacitor?

33) See Figure 10. If the switch is closed at t = 0, at what time will the voltage across the capacitor equal 75V?

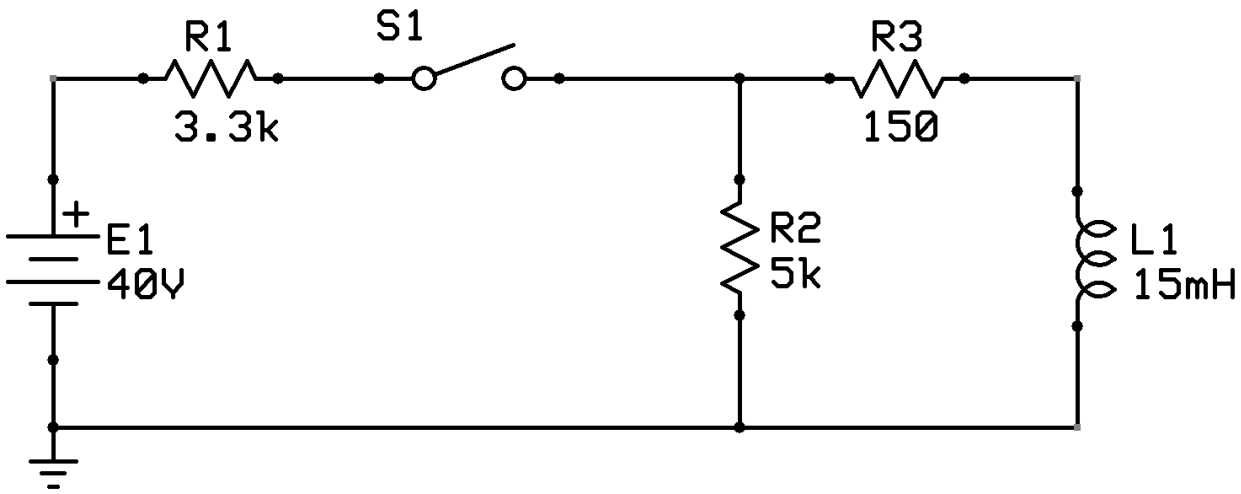

Figure 11

34) See Figure 11. The switch is closed at t = 0. Which equation describes the current through the inductor after this?

35) See figure 11. At t = 50ms, what is the voltage across the inductor?