

NAME: \_\_\_\_\_

PERIOD: \_\_\_\_\_

DATE: \_\_\_\_\_

## Unit 1 Study Guide

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### Introduction

At the conclusion of this course, you will take a multiple-choice exam (online) that will assess your understanding and /or reference ability of the information presented in this course. In order to prepare you for this end-of-course exam, you will need to complete periodic (unit) tests. In addition, these tests will provide a snapshot of your grasp of the unit concepts

### Procedure

Answer each question accurately. Be sure to use proper numbering and notation.

### Section 1: Scientific & Engineering Notation

1. Express each of the following numbers in *scientific notation*.

a. 847 = \_\_\_\_\_

b. 0.00092 = \_\_\_\_\_

c. 3,510,000 = \_\_\_\_\_

2. Express each of the following numbers in *engineering notation*.

a. 847 = \_\_\_\_\_

b. 0.00092 = \_\_\_\_\_

c. 3,510,000 = \_\_\_\_\_

3. Express each of the following numbers using the appropriate *SI prefix*.

Don't forget to retain the units.

a. 0.0000000157 A = \_\_\_\_\_

b. 6800000  $\Omega$  = \_\_\_\_\_

c. 0.00425 V = \_\_\_\_\_

4. Convert the following numbers into the *SI prefix* shown.

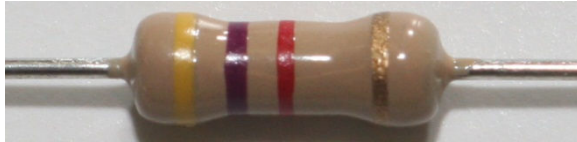
a. 2.7 M  $\Omega$  = \_\_\_\_\_ k  $\Omega$

b. 25.67  $\mu$ F = \_\_\_\_\_ mF

c. 0.0127 nSec = \_\_\_\_\_ pSec

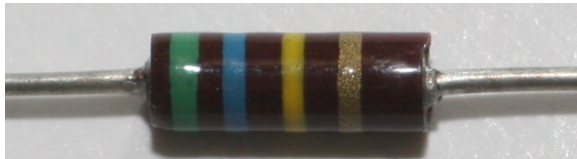
## Section 2: Component Identification

1. Determine the nominal resistance value for the following components.



(Yellow / Violet / Red / Gold)

a.  $R_a =$  \_\_\_\_\_



(Green / Blue / Yellow / Gold)

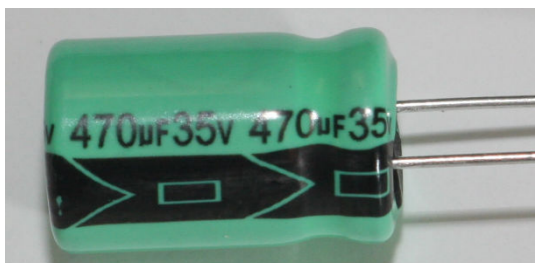
b.  $R_b =$  \_\_\_\_\_



(Red / Violet / Brown / Gold)

c.  $R_c =$  \_\_\_\_\_

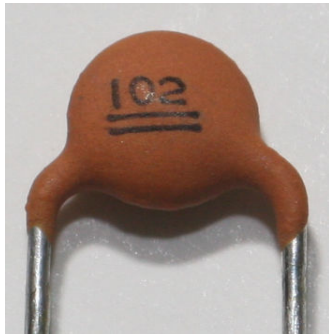
2. Determine the nominal capacitance value for the following components.



a.  $C_b =$  \_\_\_\_\_



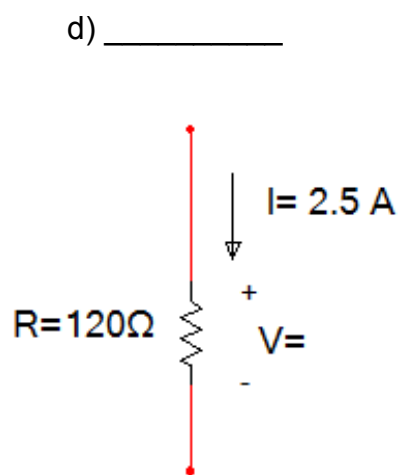
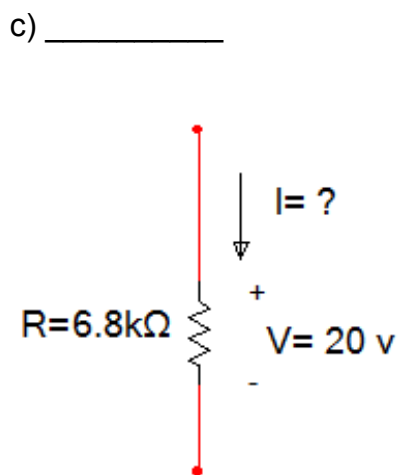
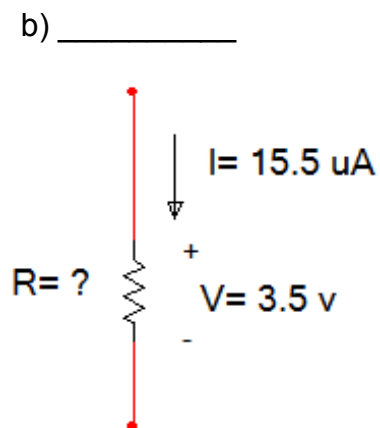
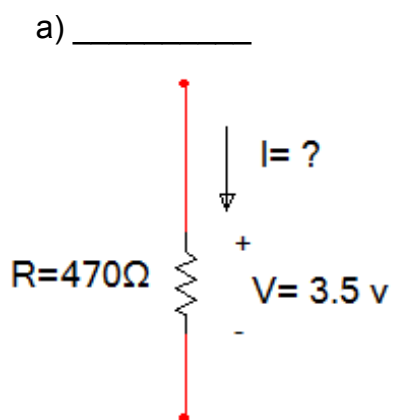
b.  $C_c =$  \_\_\_\_\_



c.  $C_e =$  \_\_\_\_\_

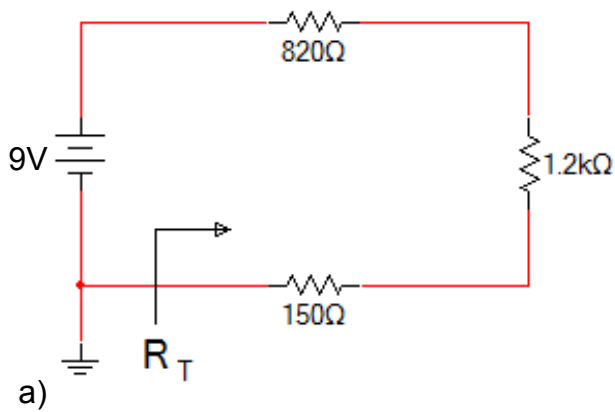
## Section 3: Circuit Theory

1. For each of the resistors shown below, use Ohm's Law to calculate the unknown quantity. Be sure to put your answer in proper engineering notation and use the correct units.



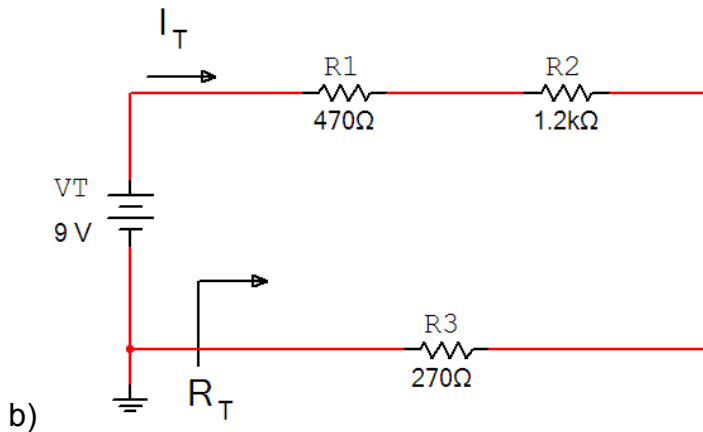
2. Using the laws of circuit theory, solve for  $R_T$ ,  $I_T$ ,  $V_{R1}$ ,  $V_{R2}$ , &  $V_{R3}$ .  
Be sure to put your answer in proper engineering notation and use the correct units.

a)



Verify your results using Kirchhoff's Voltage Law.

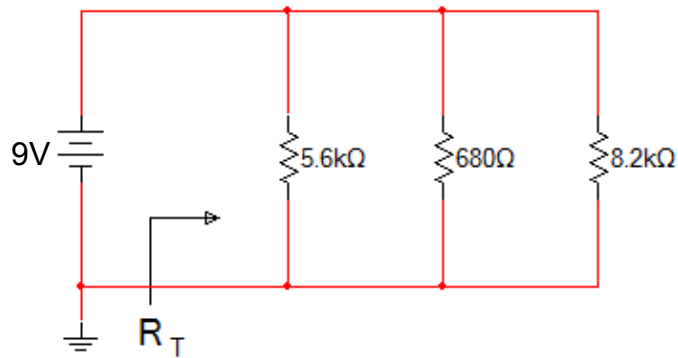
b)



Verify your results using Kirchhoff's Voltage Law.

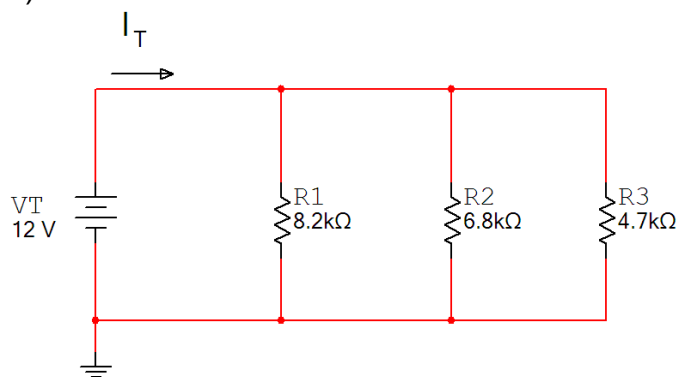
3. Using the laws of circuit theory, solve for  $R_T$ ,  $I_T$ ,  $I_{R1}$ ,  $I_{R2}$ , &  $I_{R3}$ .  
Be sure to put your answer in proper engineering notation and use the correct units.

a)



Verify your results using Kirchhoff's Current Law.

b)



Verify your results using Kirchhoff's Current Law.