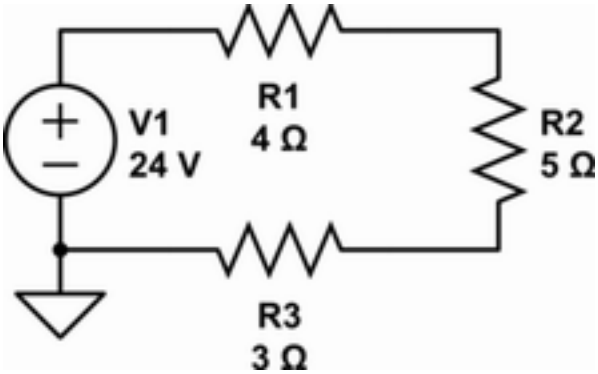
Name: _____

Circuit Lab Test (you only need to put your name on the first page of each test)

SI Units

1. Electromotive Force -
2. Current -
3. Restivity -
4. Power -
5. Charge -

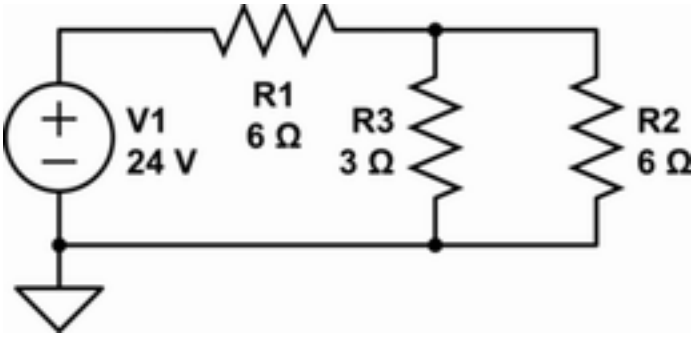
6. Find the current through each resistor and total effective resistance.



R1: _____ R2: _____ R3: _____

Total R: _____

7. Find the current through each resistor and total effective resistance.



R1: _____ R2: _____ R3: _____

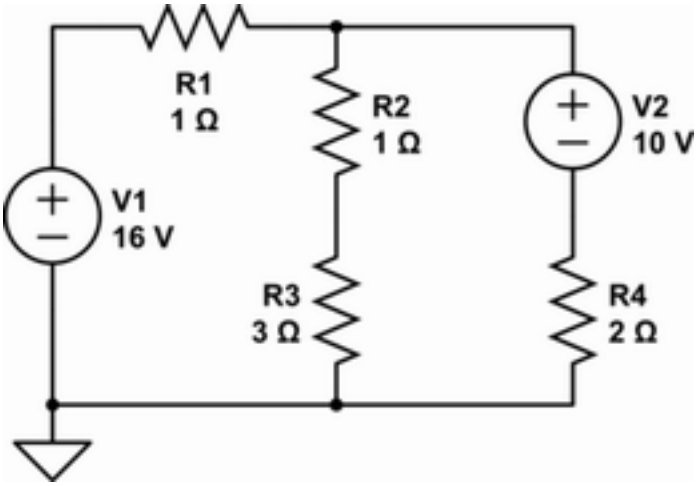
Total R: _____

8. What is Coulomb's Law?

_____

9. Find the magnitude of VOLTAGE drop across each resistor.

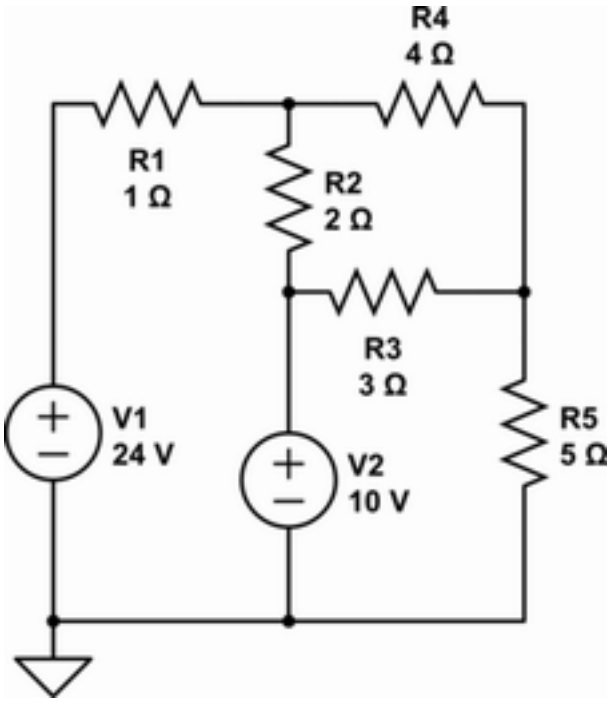
Name: _____



R1: _____ R2: _____ R3: _____

R4: _____

10. Draw the three mesh currents on the following circuit. Then set up three equations to find current through all five resistors, but do not solve.



Equations: 1.

2.

3.

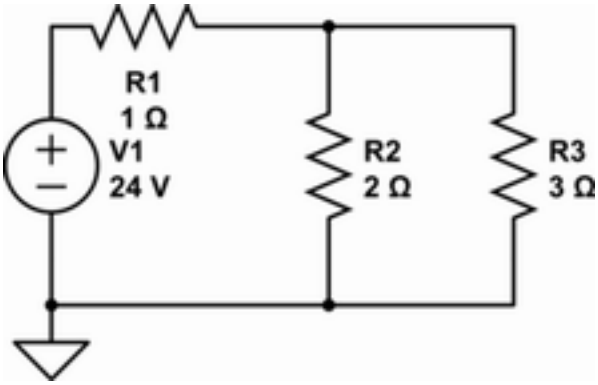
11. Calculate the power dissipated as 6 C of charge passes through a 2 Ω resistor in 3 second.Show your work.

_____

12. Illustrate how one would measure voltage across resistor 3 and current through resistor 1.

Name: _____

Use a V with a circle around it to indicate a voltmeter and use a A with a circle around it to indicate an ammeter. X out any wires to break them.



Find resistance and tolerance for the following 4-band resistors

13. Blue, Purple, Yellow, Gold

_____

14. Green, Gray, Orange, Silver

_____

15. Express the ohm in SI Base units.

_____

16. What is the resistance of a lead wire (resistivity 22 * 10 ^ -8 ohm meters) with length 2 m and radius 3 cm? Show your work

_____

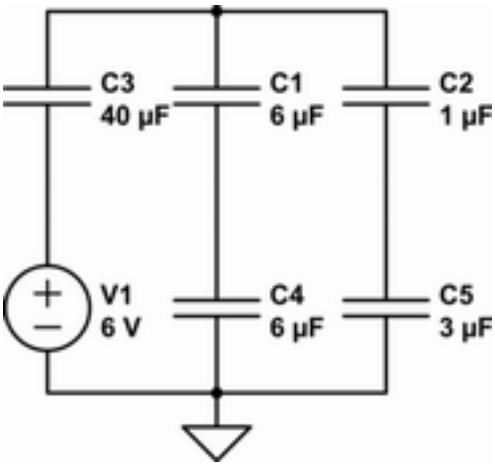
17. The wheatstone bridge is commonly used to measure what unknown quantity?

_____

18. Explain the difference between conventional current and electron current.

Name: _____

19. What is the total capacitance of the following circuit?



C _____

20. Suppose a parallel plate capacitor has surface area of 2.5 sqcm and a separation of 3.5 mm. What is the capacitance of the capacitor? Show your work.

_____

21. There is now a voltage of 20 V applied across the capacitor in question 19. What is the charge on the capacitor. Show your work.

_____

22. Calculate the Thevenin equivalent resistance and voltage for this circuit, taking R1 as the load.