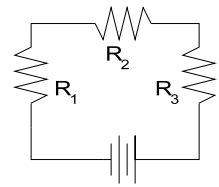


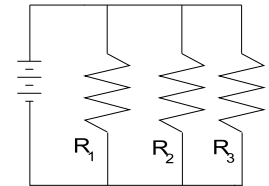
2. Fill out the table for the circuit diagramed at right. USE PROPER SIG FIGS

Circuit Position	Voltage (V)	Current (A)	Resistance (Ω)
1			10.0
2			20.0
3			30.0
Total	6.00		



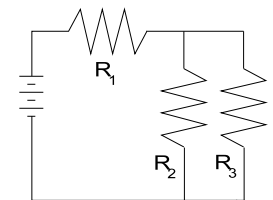
3. Fill out the table for the circuit diagramed at right. USE PROPER SIG FIGS

Circuit Position	Voltage (V)	Current (A)	Resistance (Ω)
1			10.0
2			20.0
3			30.0
Total	6.00		

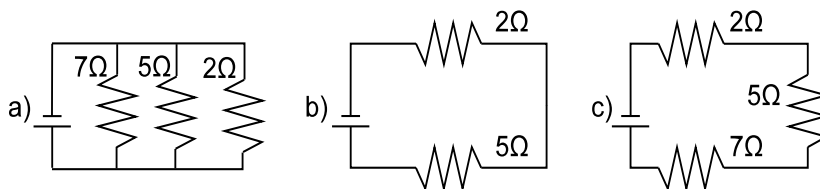


4. Fill out the table for the circuit diagramed at right. USE PROPER SIG FIGS

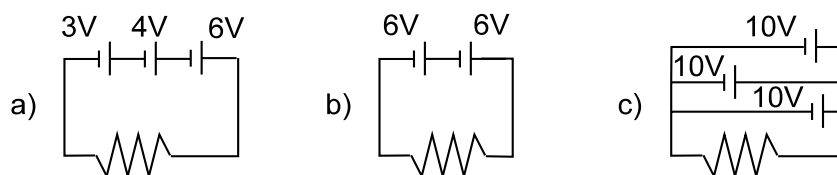
Circuit Position	Voltage (V)	Current (A)	Resistance (Ω)
1			10.0
2			20.0
3			30.0
Total	6.00		



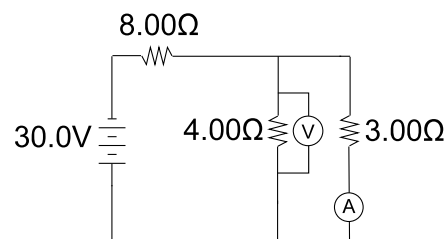
_____ 5. If the cells are identical, which circuit would draw the most current from the cell?



_____ 6. If the resistors are identical, which circuit would have the lowest overall change in electrical potential energy per unit charge?



7. Use the diagram of the complex circuit to answer the following questions. You may use a table to guide your work, but you must show all relevant equations and calculations in the spaces below.



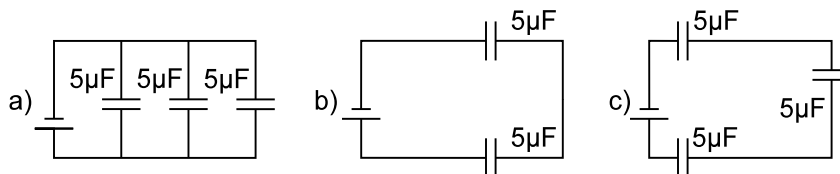
- a) What is the effective resistance of the parallel part of the circuit?
- b) What is the total resistance of the entire circuit?
- c) What is the reading on the voltmeter? (You may use a table to guide your approach, but you must separately show all equations and calculations.)
- d) What is the reading on the ammeter?
The correct answer is 1.76 A.

POWER IN CIRCUITS:

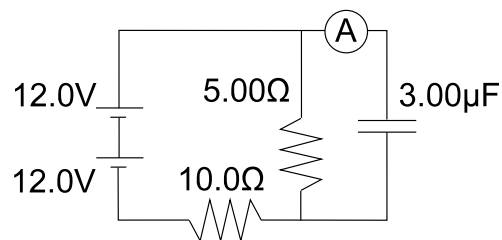
8. Fluffy's shock collar (she meows too much) delivers a current of 0.0600 A and runs on a 9.00 V battery.
- a) What is the power of the collar circuit in watts?
- b) Over a three month period the collar is in operation for a total of 600 seconds. How many joules of electrical energy were consumed during that period of time? SHOW THE EQUATION
- c) A typical 9.00 V battery might cost \$2.40 and provide 19,250 J of energy. What is the cost of running the shock collar as described in parts **a** and **b**?

CAPACITORS:

- _____ 9. If the cells are identical, which circuit would store the most total charge?



10. The circuit diagram at right shows a $3.00 \mu\text{F}$ capacitor hooked up in parallel across a 5.00Ω resistor that is in turn hooked up in series with a 10.0Ω resistor. The emf sources in the circuit are two 12.0 V batteries hooked in series with one another.



- a) Use the information provided to determine the voltage across the capacitor after it is fully charged.
- b) Now find the charge on one of the plates of the fully-charged capacitor.
- c) How much current is detected by the ammeter once the capacitor is fully charged?