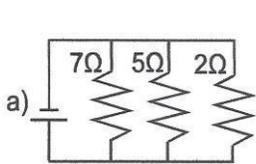
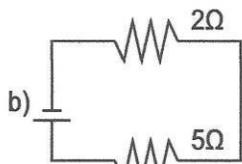


REVIEW WORKSHEET

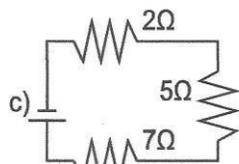
1. Determine the equivalent (total) resistance for each of the following circuits below.



$R_{eq} = \underline{\hspace{2cm}}$

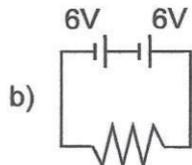
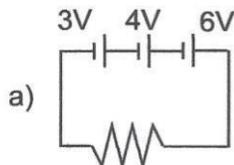


$R_{eq} = \underline{\hspace{2cm}}$

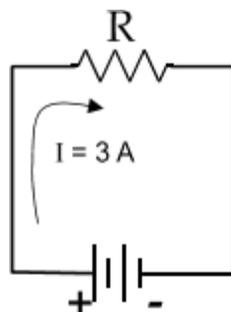


$R_{eq} = \underline{\hspace{2cm}}$

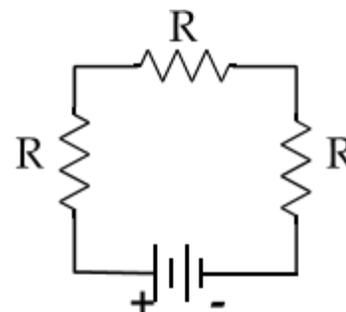
2. Determine the total voltage (electric potential) for each of the following circuits below.



3. In a series circuit there is just one path so the charge flow is constant everywhere (charge is not lost or gained). Circuit **B** was made by adding 2 more identical resistors in series to circuit **A**



Circuit A



Circuit B

a) How is the charge flow out of the battery (and back into it) affected by adding more bulbs in series?

b) If the resistors were light bulbs, how do you expect the brightness of the bulbs to be affected by adding more bulbs in series?

c) How is the brightness in the 2 circuits related to charge flow or current?

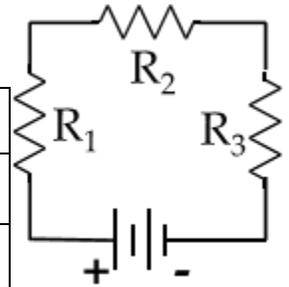
d) How does the current in circuit B compare to circuit A?

e) How is current (I) related to the resistance of the circuit?

f) If the resistance of a circuit is quadrupled, by what factor does the current change?

4. Fill out the table for the circuit diagramed at the right.

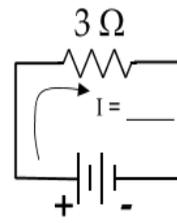
Circuit Position	Voltage (V)	Current (A)	Resistance (Ω)	Power (W)
1			10	
2			20	
3			30	
Total	6			



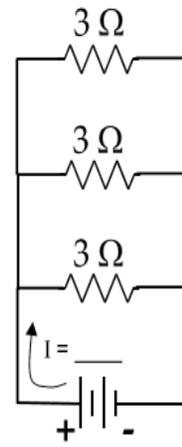
- Is there a relationship between resistance and voltage drop in a series circuit? If so, state it.
- If the resistors were light bulbs, explain in terms of charge flow (current) and energy per charge (voltage) which bulb would be brightest / dimmest.

5. In a parallel circuit, there is more than one loop or pathway so charge flow gets split up or recombined at junction points. Therefore current is not the same at every point in the circuit

- How does the current through the one resistor in circuit A, compare to the current through each resistor in circuit B?



6V
Circuit A

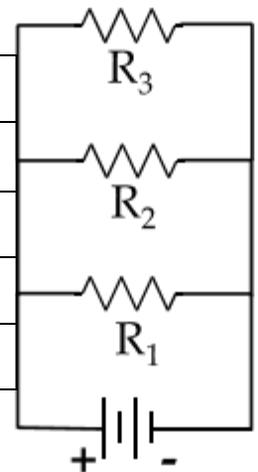


6V
Circuit B

- How does the sum of the currents through the three bulbs in circuit B compare to current from the battery in circuit A?
- How is the current out of the battery (and back into it) affected by adding resistors in parallel? Explain
- If the resistors were light bulbs, how does the brightness of each bulb in circuit B compare to the brightness of the single bulb in circuit A?
- How is the resistance of a circuit affected by adding additional pathways?

6. Fill out the table for the circuit diagramed at the right.

Circuit Position	Voltage (V)	Current (A)	Resistance (Ω)	Power (W)
1			10	
2			20	
3			30	
Total	6			



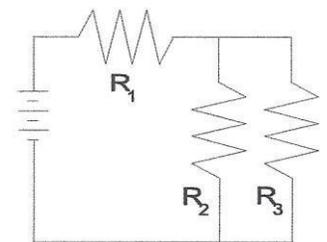
a) How does the voltage drop across each branch in a parallel circuit compare?

b) If the resistors were light bulbs, explain in terms of charge flow (current) and energy per charge (voltage) which bulb would be brightest / dimmest.

7. Consider the circuit at right. Assume the resistors are identical.

a) Rank the resistors according to the flow of charge through them.

b) Imagine that the resistors in parallel (R_2 and R_3) were a single resistor. How would the combined equivalent resistance of $R_{2,3}$ compare to the resistance of R_1 ?



c) Now let $R_1 = 10 \Omega$, $R_2 = 20 \Omega$ and $R_3 = 30 \Omega$ Fill out the table for the circuit

Circuit Position	Voltage (V)	Current (A)	Resistance (Ω)	Power (W)
1			10	
2			20	
3			30	
Total	6			

8. A kitchen in North America has three appliances connected to a 120 V circuit with a 15 A circuit breaker: an 850 W coffee maker, a 1200 W microwave oven, and a 900 W toaster.
- Draw a schematic diagram of this circuit.
 - Which of these appliances can be operated simultaneously without tripping the circuit breaker?
9. Identify each of these logic gates by name, and complete their respective tables.



A	B	Output
0	0	
0	1	
1	0	
1	1	



A	B	Output
0	0	
0	1	
1	0	
1	1	



A	B	Output
0	0	
0	1	
1	0	
1	1	



A	B	Output
0	0	
0	1	
1	0	
1	1	



A	B	Output
0	0	
0	1	
1	0	
1	1	



A	B	Output
0	0	
0	1	
1	0	
1	1	



A	B	Output
0	0	
0	1	
1	0	
1	1	



A	B	Output
0	0	
0	1	
1	0	
1	1	



A	Output
0	
1	