

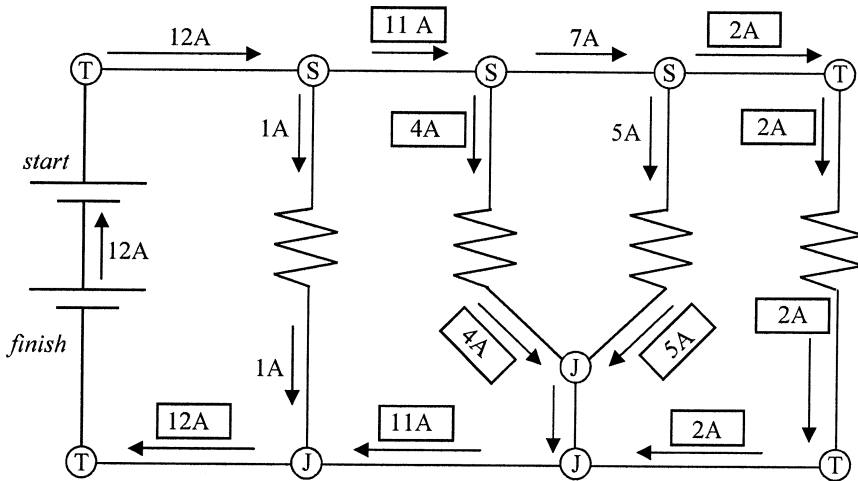
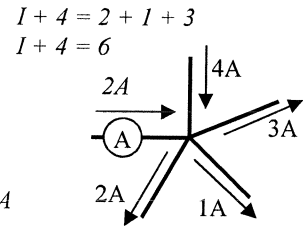
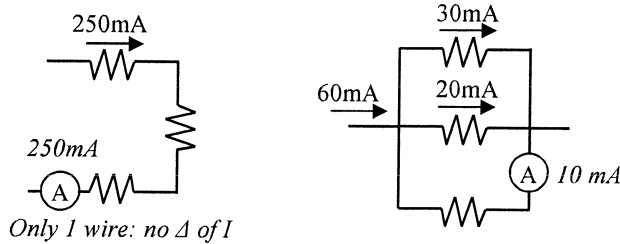
Name: _____
 Period: _____

KEY

- Which has more current: a slow river or a dentist's water pix? *Slow river. Current is like gallons per second.*
- Which has faster electrons: a wire with a lot of current or little current? *N/A. All electrons flow at same rate: the drift velocity, about 1 m per sec.*
- Why is it that when you plug in a string of lights, they all come on at the same time? *Already electrons in the wires. Wires are NOT empty tubes (like for water). Imagine the water is already in the wires.*
- 24 Coulombs of charge pass thru the cross sectional area of a wire in 4 seconds. How much current is being provided by the battery? $I = Q/t = 24C/4sec = 6 \text{ amperes}$
- A typical vacuum cleaner pulls 12 amps. How much charge is used by a vacuum cleaner each minute?
 $I = Q/t$, so $(12C/1sec)(60sec) = 720C/min$
- Currents as small as 100mA can be fatal because they can disrupt the heart.
 - At this current, how much charge per second is being absorbed by the body?
 $I = Q/t$, so $Q = It = (.1A)(1sec) = .1 \text{ C/sec}$

B. Remembering that $|1 e| = 1.6 \times 10^{-19} \text{ C}$, how many electrons are flowing into the body per second?
 $\left(\frac{0.1 \text{ C}}{1}\right) \left(\frac{1e}{1.6 \times 10^{-19} \text{ C}}\right) = 6.24 \times 10^{17} e$

- Ammeters are used to measure current. For each of the circuit segments determine the reading of the ammeter.



- Begin where it says "Start", at the top battery.
 - In each of the circles put one of the following:
 S (split);
 J (join);
 T (turn).
 - In each of the boxes fill in the amount of current flowing thru that portion of wire.

- What does AC stand for? *Alternating Current*
- What does DC stand for? *Direct Current*
- AC or DC Current?
 - AC Current that changes polarity.
 - DC Current that is constant.
 - DC From a battery.
 - AC From a house power outlet.
 - DC Graph I at the right.
 - AC Graph II at the right.
- How can a battery powered cell phone run off of a house outlet? *With an AC adaptor that has a rectifier circuit in it.*
- How can a hair drier be used in a car, which produces 12 Volts DC? *With an inverter.*

