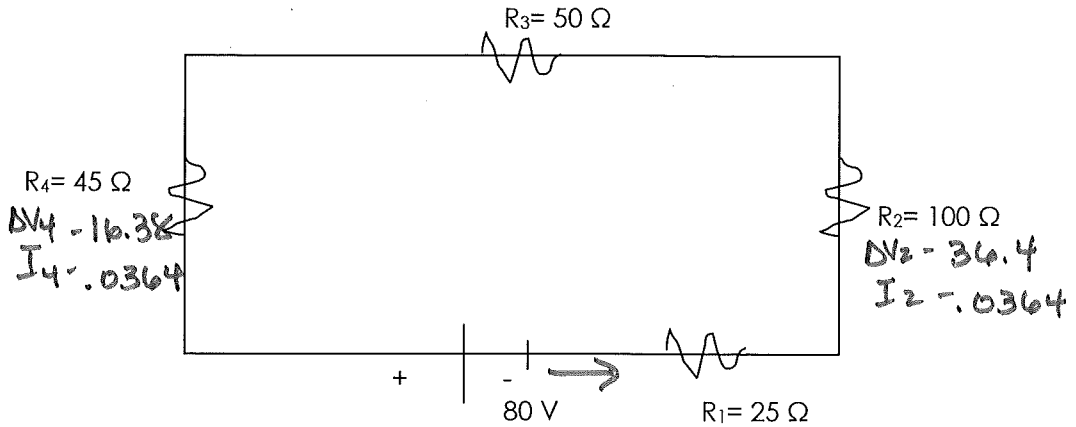
Name Key Hour _____

Simple Circuit Practice

Circuit #1

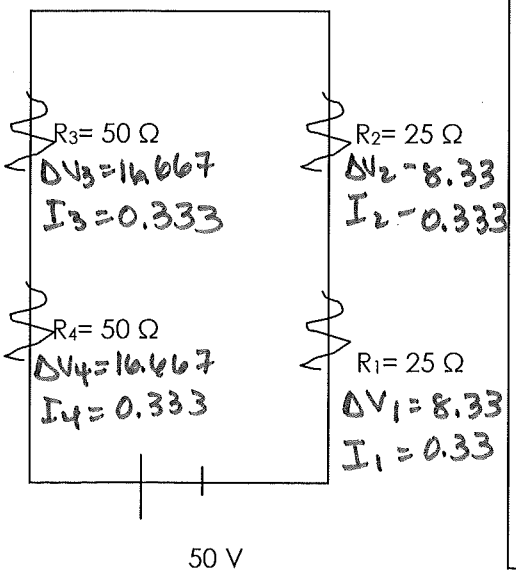


1. Which direction does the current flow? (clockwise or counterclockwise? _____
2. What type of circuit is this? (series or parallel) **EXPLAIN** how you knew which it was!
   only 1 path
3. What is the Req? 220 Ω
4. What is the total current through the circuit? $\Delta V = IR$ $80 = I(220)$ $I = 0.364$ A
5. Why is the current the same for all of the resistors?
   only 1 path for current to follow
6. What is the **voltage drop** (ΔV) for each resistor?

R1= 9.1 V R2= 36.4 V R3= 18.2 V R4= 16.38 V

80.08 V

Circuit #2



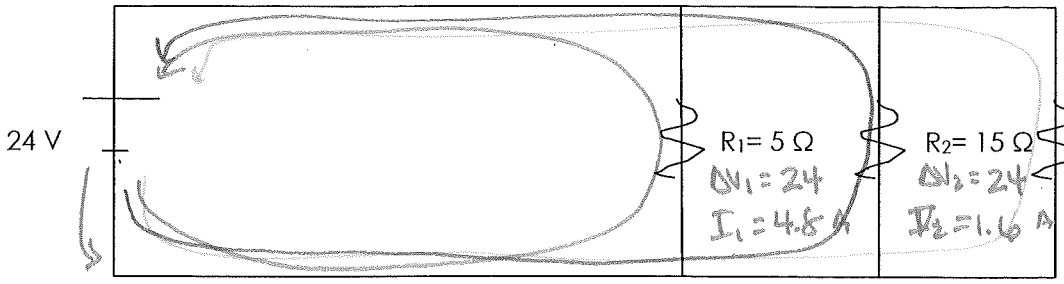
1. What type of circuit is this? (series or parallel) **EXPLAIN** how you knew which it was!
   1 path for current
2. What is the Req? 150 Ω
3. What is the total current through the circuit? $\Delta V = IR$
   $50 = I(150)$ $I = 0.333$ A
4. What is the **voltage drop** (ΔV) for each resistor?

R1= 8.33 V R2= 8.33 V
R3= 16.667 V R4= 16.667 V

50 V

Name _____ Hour _____

Circuit #3



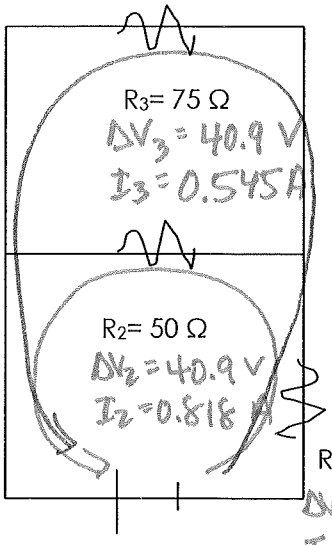
1. Which direction does the current flow? (clockwise or counterclockwise?) _____
2. What type of circuit is this? (series or parallel) **EXPLAIN** how you knew which it was!
   multiple paths for current
3. What is the Req? 3.26 Ω
4. What is the total current through the circuit?
   $24 V = I(3.26)$ $I = 7.36$ A
5. Why is the current NOT the same for all of the resistors?
   multiple paths - more current follows areas of lower resistance
6. What is the **voltage drop** (ΔV) and **current** for each resistor?

ΔV_1 = 24 V	ΔV_2 = 24 V	ΔV_3 = 24 V
I_1 = 4.8 A	I_2 = 1.6 A	I_3 = .96 A

7.36 ✓

Circuit #4

$\frac{1}{Req} = \frac{1}{75} + \frac{1}{50}$ $Req = 30 + 25 = 55$



1. What is the Req? 55 Ω
   (Do the parallel ones first and then add the series one normally)
2. What is the total current through the circuit?
   $75 = I(55)$ $I = 1.364$ A
3. Find the **voltage drop for R_1.** (All the current goes through it)
   $\Delta V_1 = (1.364)(25) = 34.09$ V
4. Determine the **voltage drop for R_2.** ($R_1 + R_2 = 75$ V)
   $75 = R_1 + R_2$
   $75 = 34.09 + R_2$ $R_2 = 40.9$ V
5. Determine the current that goes through R_2.
   $\Delta V_2 = IR_2$
   $40.9 = I(50)$ $I_2 = 0.818$ A
6. Find the voltage drop and current that travels through R_3.
   $\Delta V = \Delta V_1 + \Delta V_3$
   $75 = 34.09 + \Delta V_3$
   $\Delta V_3 = 40.9$ V
   I_3: $40.9 = I_3(75)$
   $I_3 = 0.545$

check work
.545
.818
1.363