Name Key Hour _____

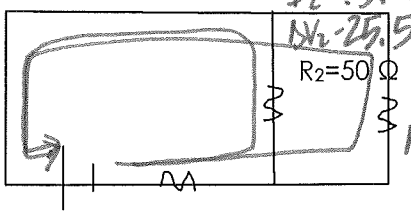
Circuit Review

Which way from a battery does the current flow? away from negative

What is a series circuit? only 1 path for current to follow

What is a parallel circuit? multiple paths for current to follow

1. Find the Req, total current, and current through and voltage drop for each resistor.



$\frac{1}{R_{eq}} = \frac{1}{50} + \frac{1}{200} = 40+150$

$\Delta V = IR$

$120 = I(190)$

Req = 190 Ω

Total I = 0.63 A

94.5 V ΔV_1 | 25.5 V ΔV_2 | 25.5 V ΔV_3

.63 A I_1 | .51 A I_2 | .128 A I_3

ΔV_1 - 94.5
I_1 - .63

$120 = \Delta V_1 + \Delta V_2$
$120 = 94.5 + \Delta V_2$
$\Delta V_2 = 25.5$ V

$\Delta V_3 = I_3 R_3$
$25.5 = I_3(200)$
$I_3 = .128$

$\Delta V_2 = I_2 R_2$
$25.5 = I_2(50)$
$I_2 = .51$

.57
+ .128
.638 ✓

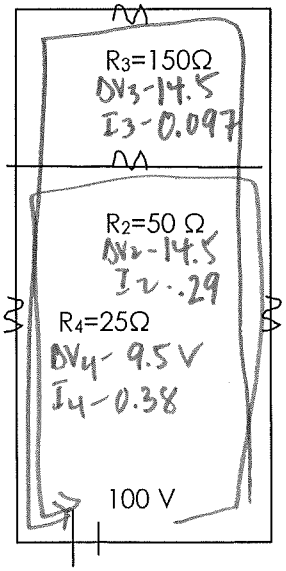
The units of resistance are: Ω

The units of voltage are: V

The units of current are: A

$120 = \Delta V_1 + \Delta V_3$
$120 = 94.5 + \Delta V_3$
$\Delta V_3 = 25.5$ ✓

2. Find the Req, total current, and current through and voltage drop for each resistor.



① $\frac{1}{R_{eq}} = \frac{1}{150} + \frac{1}{50} = 37.5 + 200 + 25$

② $\Delta V = IR$
$100 = I(262.5)$
$I = .38$ A

Req = 262.5 Ω

Total I = 0.38 A

I_1 - 0.38
ΔV_1 - 76 V

76 V ΔV_1 | 14.5 V ΔV_2 | 14.5 V ΔV_3 | 9.5 V ΔV_4

0.38 A I_1 | .29 I_2 | 0.097 I_3 | 0.38 A I_4

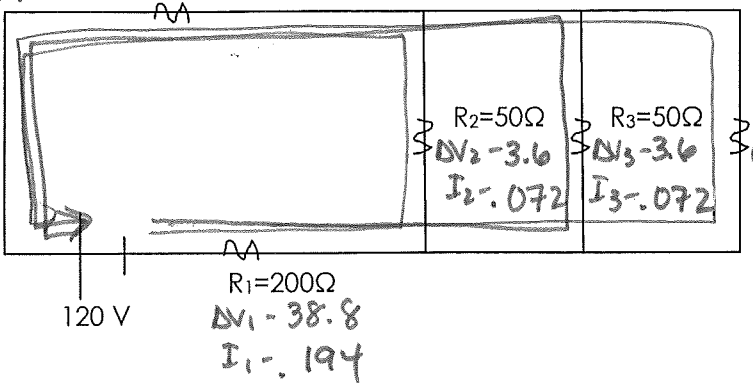
$100V = \Delta V_1 + \Delta V_2 + \Delta V_4$
$100V = 76 + \Delta V_2 + 9.5$
$\Delta V_2 = 14.5V$

$100V = \Delta V_1 + \Delta V_3 + \Delta V_4$
$100V = 76 + \Delta V_3 + 9.5$
$\Delta V_2 = 14.5$ V

Name _____ Hour _____

3. Find the Req, total current, and current through and voltage drop for each resistor.

Round current to 3 numbers!



① $\frac{1}{50} + \frac{1}{50} + \frac{1}{100} = \frac{1}{Req}$ $= 20 + 200 + 400$

② $\Delta V = IR$

$120 = I(620)$

$I = 0.194 A$

$R_{eq} =$ 620 Ω

Total I = 0.194 A

38.8 V ΔV_1 3.6 ΔV_2 3.6 ΔV_3 3.6 ΔV_4 77.6 ΔV_5

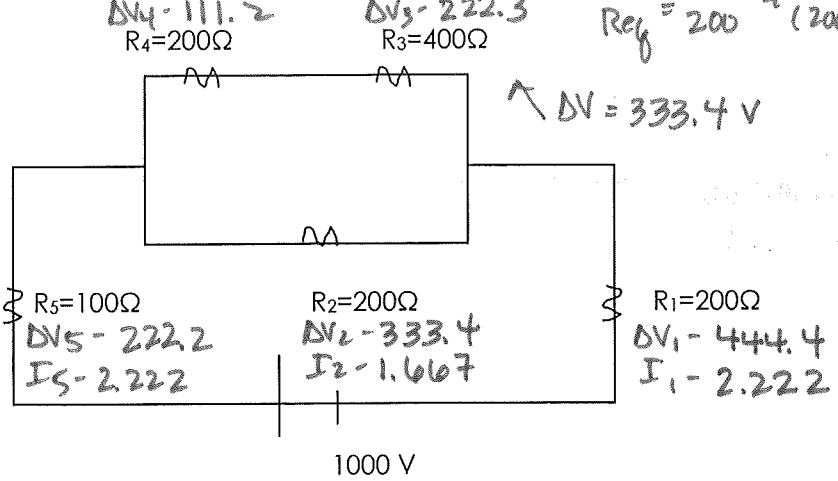
.194 A I_1 .072 I_2 .072 I_3 .036 I_4 .194 I_5

$120V = \Delta V_1 + \Delta V_2 + \Delta V_5$

$120 = 38.8 + \Delta V_2 + 77.6$

$\Delta V_2 = 3.6$

4. Find the Req, total current, and current through and voltage drop for each resistor.



① $\frac{1}{Req} = \frac{1}{200} + \frac{1}{(200+400)}$ $= 150 + 200 + 100 = 450\ \Omega$

② $\Delta V = IR$

$1000 = I(450)$

$R_{eq} =$ 450 Ω

Total I = 2.222

444.4 ΔV_1 333.4 ΔV_2 222.3 ΔV_3 111.2 ΔV_4 222.2 ΔV_5

2.222 I_1 1.1067 I_2 .556 I_3 .556 I_4 2.222 I_5

ΔV_2:

$1000V = \Delta V_1 + \Delta V_2 + \Delta V_5$

$1000 = 444.4 + \Delta V_2 + 222.2$

$\Delta V_2 = 333.4$

$I_{3/4}$:

$333.4 = I_{3/4}(600)$

$I_{3/4} = .556\ A$

so

$\Delta V_3 = (.556)(400)$

$\Delta V_4 = (.556)(200)$