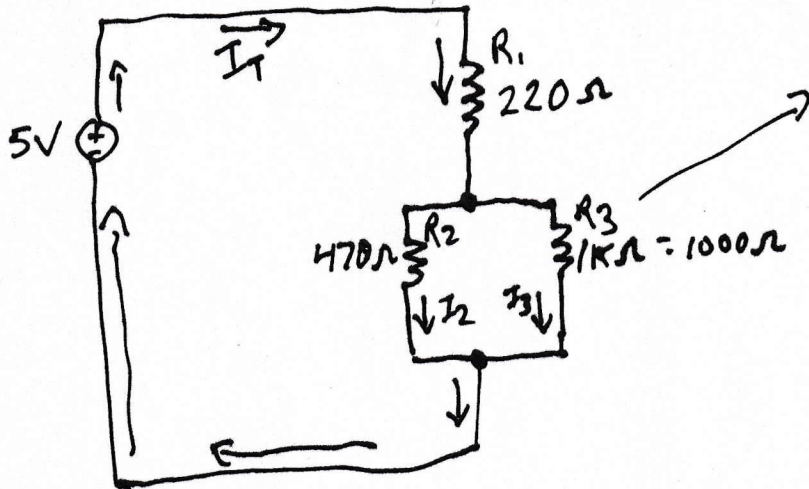


Series/Parallel Circuits



$$R_1 = 220\Omega$$

$$R_P = 320\Omega$$

$$R_2 = 470\Omega$$

$$R_3 = 1000\Omega$$

$$V_{R_1} = 2.04V$$

$$V_{R_2} = 2.96V$$

$$V_{R_3} = 2.96V$$

$$V_P = 2.96V$$

$$I_T = 9.26mA$$

$$I_2 = 6.29mA$$

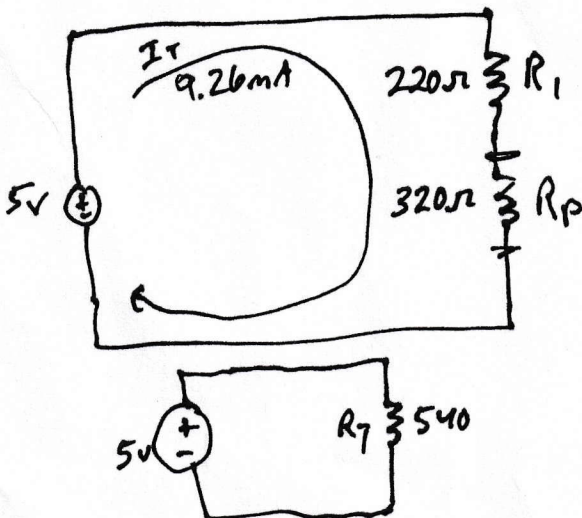
$$I_3 = 2.96mA$$

KCL

$$I_T = I_2 + I_3$$

KVL

$$5V = V_{R_1} + V_P$$



$$\frac{1}{R_T} = \frac{1}{R_2} + \frac{1}{R_3} + \frac{1}{R_N} \dots$$

$$R_T = \frac{1}{\frac{1}{R_2} + \frac{1}{R_3}}$$

$$R_T = \frac{1}{\frac{1}{470\Omega} + \frac{1}{1000\Omega}} = \frac{1}{0.002127 + 0.001} = \frac{1}{0.003127}$$

$$R_T = \frac{1}{0.003127} = 319.7278911565\Omega$$

$$R_T \approx 319.7278911565\Omega$$

$$R_T \approx 320\Omega$$

(2)

$$\frac{R_2 \times R_3}{R_2 + R_3} = \frac{470 \times 1000}{470 + 1000} = 319.727\Omega$$

$$\approx 320\Omega$$

only 2 resistors

~~KCL~~

$$I_2 = \frac{V_P}{R_2} = \frac{2.96V}{470\Omega} = 0.00629A = 6.29mA$$

$$I_3 = \frac{V_P}{R_3} = \frac{2.96V}{1000\Omega} = 0.00296A = 2.96mA$$

KCL

$$I_T = 0.00629A + 0.00296A = 0.00925A \dots \approx 9.26mA$$

$$R_T = R_1 + R_P = 220\Omega + 320\Omega = 540\Omega$$

$$V = IR, I_T = \frac{V}{R} = \frac{5V}{540\Omega} = 0.009259A$$

$$I_T \approx 9.26mA$$

$$V_{R_1} = 9.26mA \times 220\Omega = 2.0372V$$

$$V_{R_1} = 2.04V$$

$$5V = V_{R_1} + V_{R_P}$$

$$V_{R_P} = 5V - V_{R_1} = 5V - 2.04V = 2.9629V$$

$$V_P = V_{R_2} = V_{R_3}$$

Series / Parallel Circuits

± 5%

Calculated Values

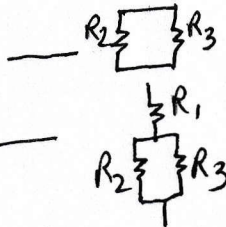
$$R_1 = 220 \Omega$$

$$R_2 = 470 \Omega$$

$$R_3 = 1000 \Omega$$

$$R_p = \sim 320 \Omega$$

$$R_{TOT} = 540 \Omega$$



$$V_s = 5V$$

$$V_{R_1} = 2.04V$$

$$V_{R_2} = V_{R_3} = V_p = 2.96V$$

$$I_T = 9.26mA$$

$$I_2 = 6.29mA$$

$$I_3 = 2.96mA$$

$$R_1 = 217 \Omega$$

$$R_2 = 471 \Omega$$

$$R_3 = 1.006 k\Omega = 1006 \Omega$$

$$R_p = 321 \Omega$$

$$R_{TOT} = 540 \Omega$$

$$V_s = ~~5.02~~ 5.02V$$

$$V_{R_1} = 2.02V$$

$$V_{R_2} = 2.99V$$

$$I_T = 9.20mA$$

$$I_2 = 6.27mA$$

$$I_3 = 2.94mA$$

LAB NOTES

Encouraging Bible Verse:

Colossians 3:23

"And whatsoever ye do, do it heartily, as to the Lord, and not unto men;"