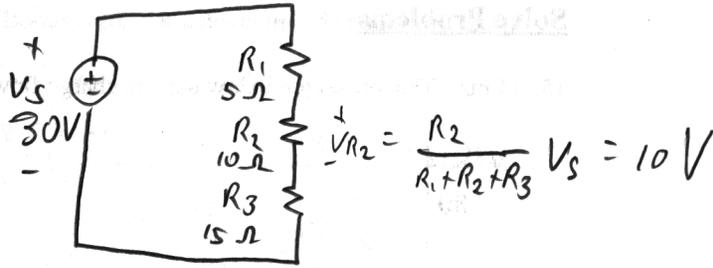
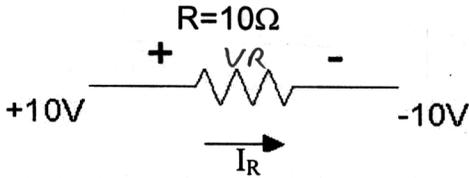


11. (2 pts) A 30 volt battery is connected to three resistors in series with values of 5, 10 and 15 Ω . The voltage drop across the 10 Ω resistor is (Circle all that apply):

- a. 5 volts
- b. higher if it is the first resistor in series
- c. higher if it is the last resistor in series
- d. none of the above



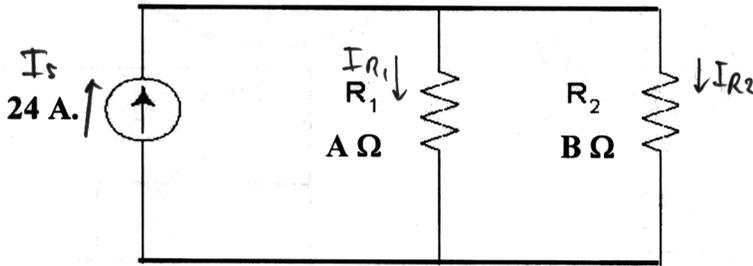
12. (4 pts) Solve for the current, I_R , shown below.



$$I_R = \frac{V_R}{R} = \frac{10V - (-10V)}{10\Omega} = 2A$$

$I_R = \underline{\quad 2A \quad}$

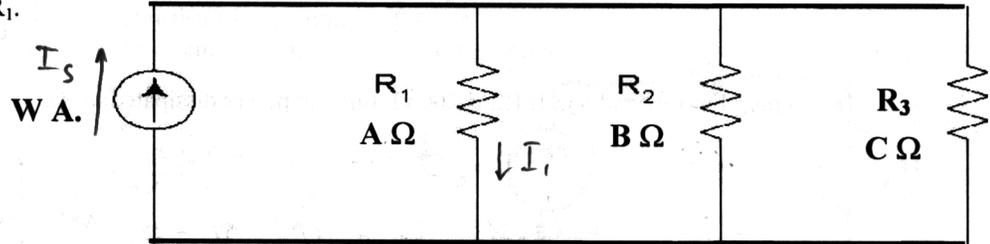
13. (4 pts) A current source of 24 amps is powering two resistors R_1 and R_2 . Write the algebraic expression for the current I_1 through the resistor R_1 .



$$I_1 = \frac{\frac{R_1 || R_2}{R_1} I_S}{\frac{R_1 || R_2}{R_1} + \frac{R_1 || R_2}{R_2}} I_S = \frac{R_2}{R_1 + R_2} I_S$$

14. (4 pts) A current source of W amps is powering three resistors R_1 , R_2 and R_3 . Write the algebraic expression for the current I_1 through the resistor R_1 .

$$I_1 = \frac{R_2 R_3}{R_1 R_2 + R_1 R_3 + R_2 R_3} I_S$$



$$R_{parallel} = R_1 || R_2 || R_3$$

$$I_1 = \frac{R_{parallel}}{R_1} I_S$$

$$= \frac{1}{R_1} \left(\frac{1}{\frac{1}{R_2} + \frac{1}{R_3}} \right) I_S$$

$$= \frac{R_2 R_3}{R_1 R_2 + R_1 R_3 + R_2 R_3} I_S$$