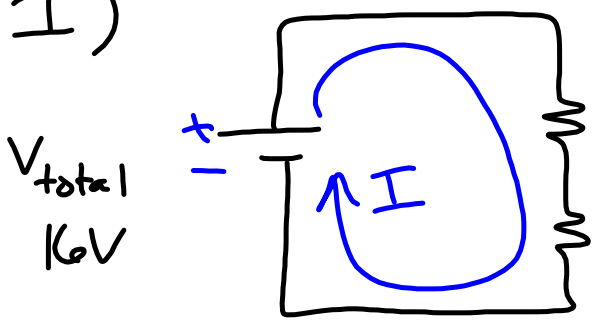
Circuits Practice

$V = IR$ $R_{eq} = R_1 + R_2 + \dots$

$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2} + \dots$

1)



$V_1 = IR_1 = 8V$

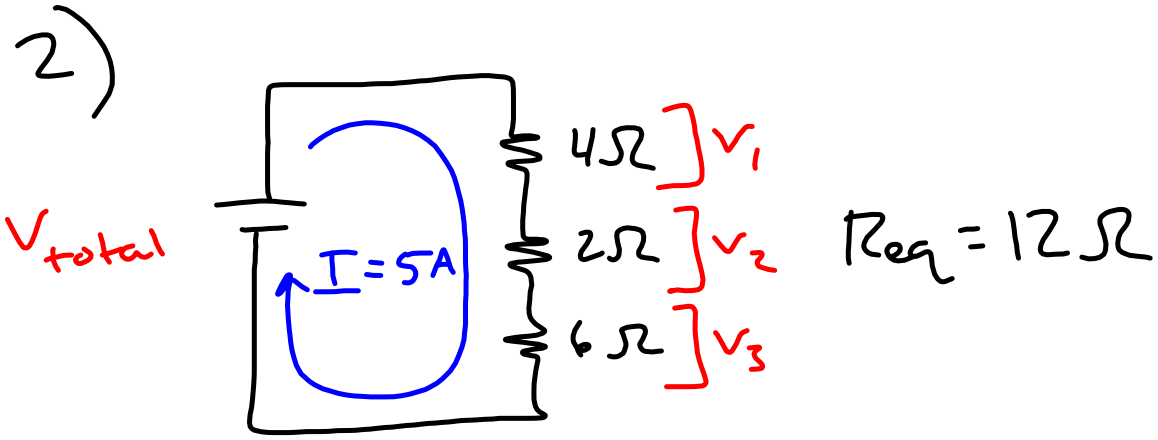
$V_2 = IR_2 = 8V$

$R_{eq} = 4\Omega + 4\Omega = 8\Omega$

conventional current goes from + to −

$$I = \frac{V_{total}}{R_{eq}} = \frac{16V}{8\Omega} = 2A$$

2)



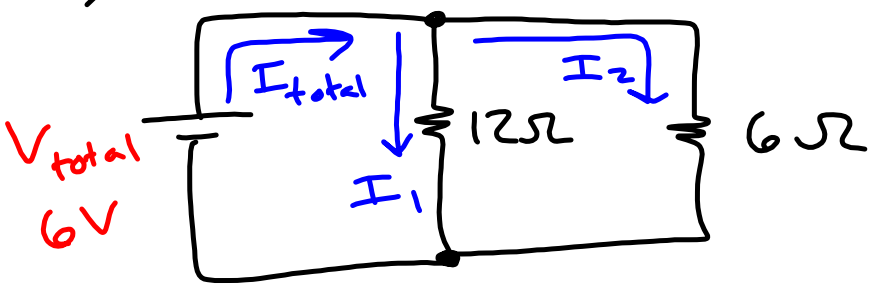
$$V_{total} = I R_{eq} = (5A)(12\Omega) = 60V$$

$$V_1 = I R_1 = 20V$$

$$V_2 = I R_2 = 10V$$

$$V_3 = I R_3 = 30V$$

3)



$$I_1 = \frac{V_{total}}{R_1} = 0.5\,A$$

$$I_2 = \frac{V_{total}}{R_2} = \frac{6\,V}{6\,\Omega} = 1\,A$$

$$I_{total} = I_1 + I_2 = 1.5\,A$$

$$\frac{1}{R_{eq}} = \frac{1}{R_1} + \frac{1}{R_2}$$

$$\frac{1}{R_{eq}} = \frac{1}{12\,\Omega} + \frac{1}{6\,\Omega}$$

$$= \frac{3}{12\,\Omega} = \frac{1}{4\,\Omega}$$

$$R_{eq} = 4\,\Omega$$

$$R_{eq} = 4\,\Omega$$