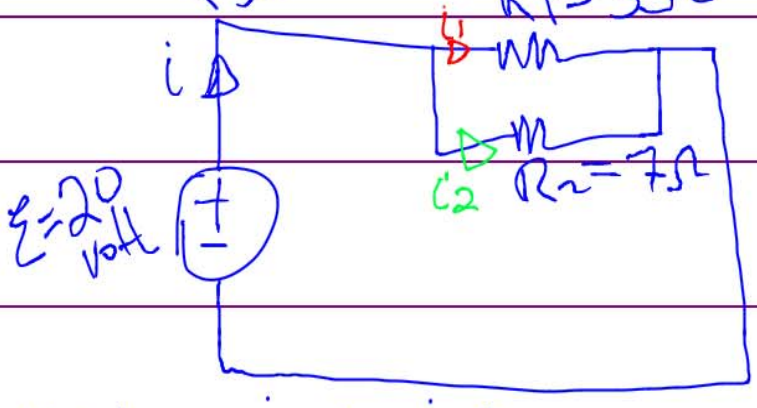
conductance $G_k = \frac{1}{R_k}$

$$i_k = \left(\frac{G_k}{\sum_{j=1}^{n} G_j}\right) i$$



$$i_1 = \frac{7}{10} * i = 0.7 * 9.5 = 6.65 A$$

$$i_2 = \left(\frac{3}{3+7}\right) i$$

$$= 0.3 * 9.5 = 2.85 A$$

parallel

KCL $i_1 + i_2 - i = 0$

$i_1 = i - i_2 = 9.5 - 2.85 = 6.65 A$

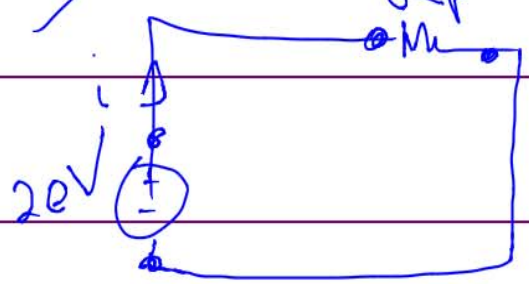
$$\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2}$$

$$R_p = \frac{R_1 R_2}{R_1 + R_2} = \frac{3*7}{3+7} = 2.1\Omega$$

$$\frac{1}{R_p} = \frac{R_2 + R_1}{R_1 R_2}$$

$R_p = \cancel{\frac{R_1 R_2 R_3}{R_1 + R_2 + R_3}}$

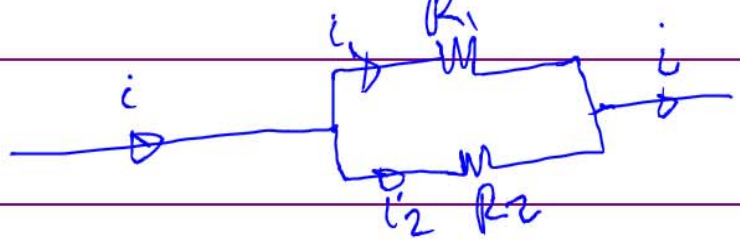
$R_p = 2.1\Omega$



$R i = V$

$2.1 * i = 20$

$$i = \frac{20}{2.1} = 9.5 A$$



$$i_2 = \left(\frac{R_1}{R_1 + R_2}\right) i \qquad i_1 = \left(\frac{R_2}{R_1 + R_2}\right) i$$