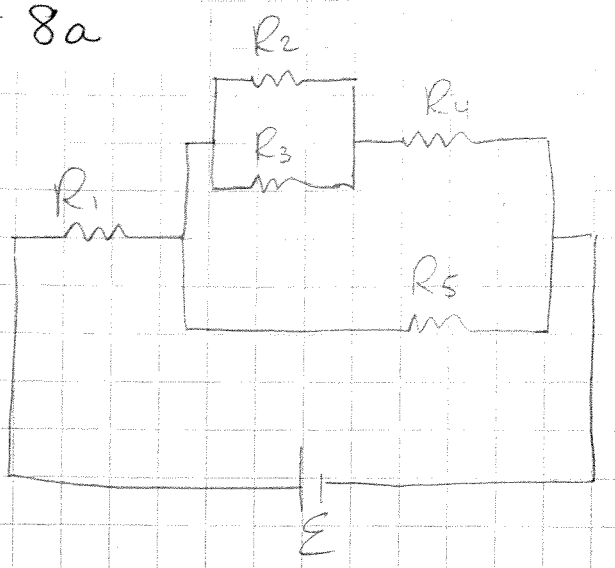
P # 8a

Ch 18 - pg 578

a)



$R_1 = 3\Omega$

$R_2 = 10\Omega$

$R_3 = 5\Omega$

$R_4 = 4\Omega$

$R_5 = 3\Omega$

Find R_{23} ... (Parallel) $\quad \frac{1}{R_{23}} = \frac{1}{R_2} + \frac{1}{R_3}$

$R_{23}^{-1} = (10\Omega)^{-1} + (5\Omega)^{-1}$

$R_{23}^{-1} = .3$

$R_{23} = 3.\overline{3}\,\Omega$

Find R_{234} ... (Series) $\quad R_{234} = R_{23} + R_4$

$= 3.\overline{3}\,\Omega + 4\,\Omega$

$R_{234} = 7.3\,\Omega$

Find R_{2345} ... (Parallel) $\quad \frac{1}{R_{2345}} = \frac{1}{R_{234}} + \frac{1}{R_5}$

$R_{2345}^{-1} = (7.\overline{3}\,\Omega)^{-1} + (3\Omega)^{-1} = .47$

$R_{2345} = 2.1\,\Omega$

Find R_{eq} ... (Series) $\quad R_{eq} = R_1 + R_{2345}$

$= 3\Omega + 2.1\,\Omega$

$\boxed{R_{eq} = 5.1\,\Omega}$