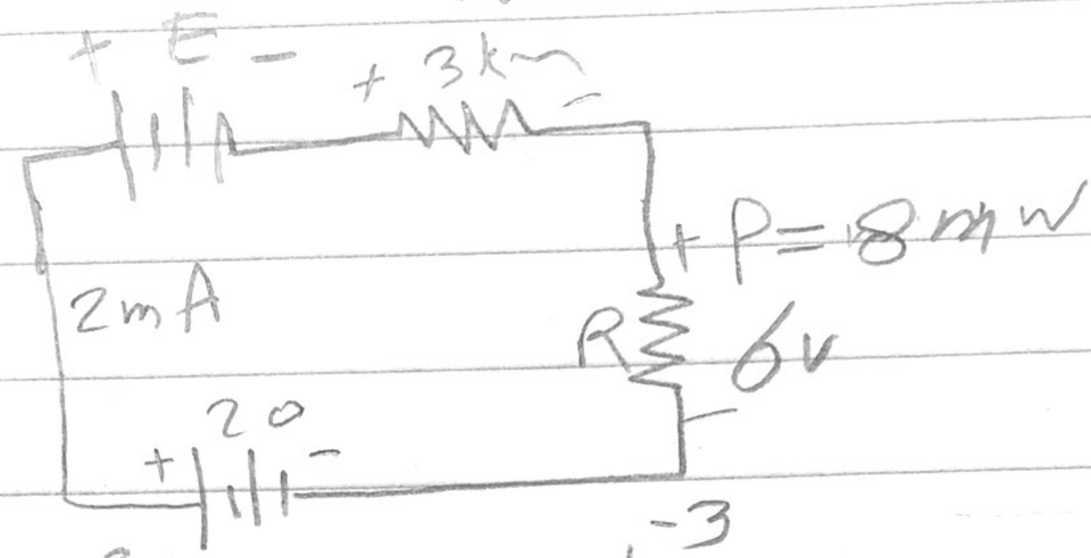
$R = 6\Omega$

$I = \frac{24}{12} = 2$

8V 6V



(19) (4)

(a) (2)

$P = I^2R = (2\times10^{-3})^2 R = 8\times10^{-3}$

$4\times10^{-6} R = 8\times10^{-3}$

$R = \frac{8\times10^{-3}}{4\times10^{-6}} = 2K\Omega$

$V_{3K} = 2\times3 = 6V$

$V_R = 2\times2 = 4V$

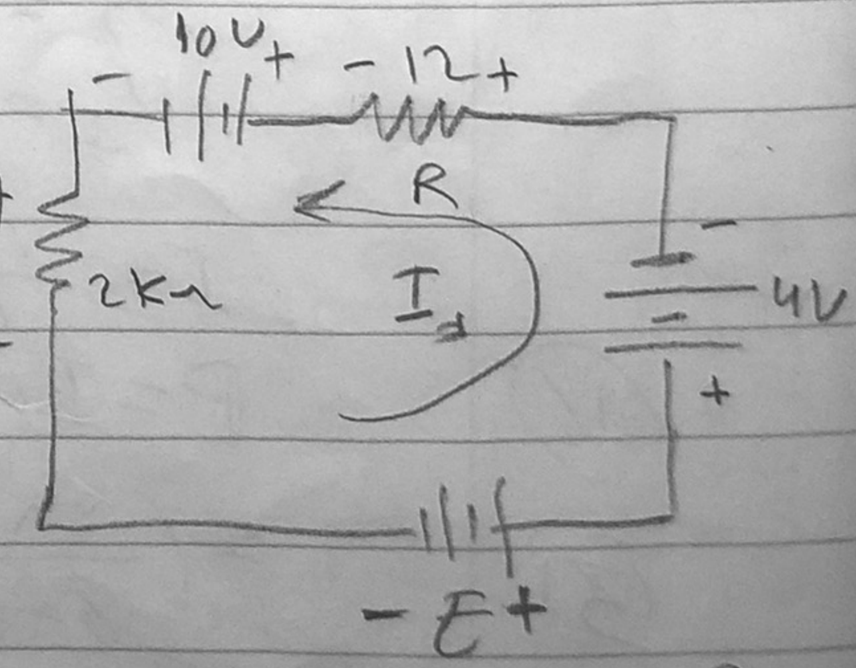
Kirchoff's Law $20 - E - 6 - 6 = 0$

$E = 20 - 10 = 10V$

(b) (2) $I = \frac{16}{2K} = 8mA$

$R = \frac{V}{I} = \frac{12}{8mA}$

$R = 1.5K\Omega$

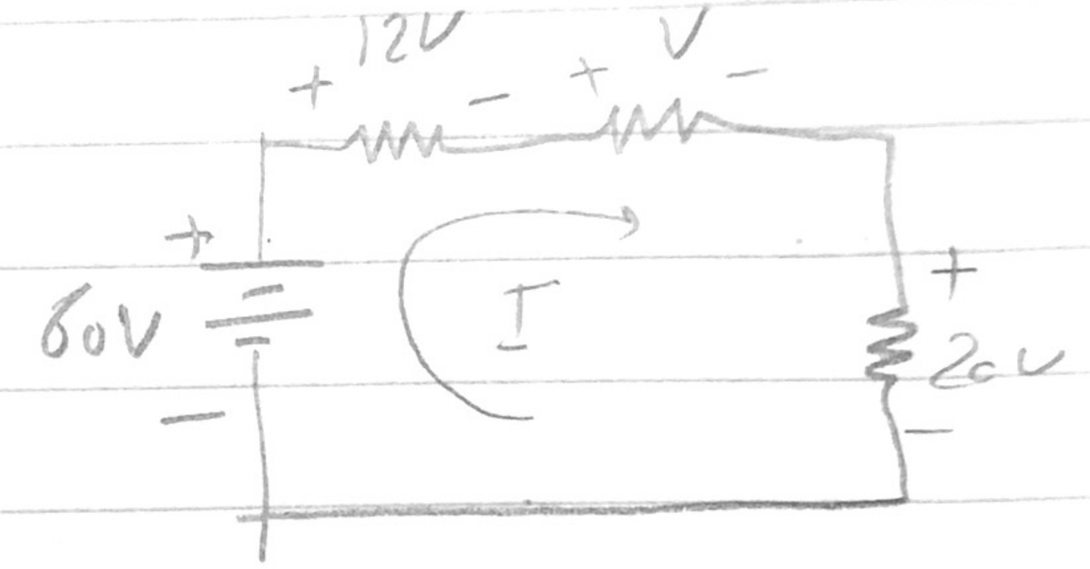


$E - 4 - 12 - 10 - 16 = 0$

$E = 42V$

(21) (a) (i)

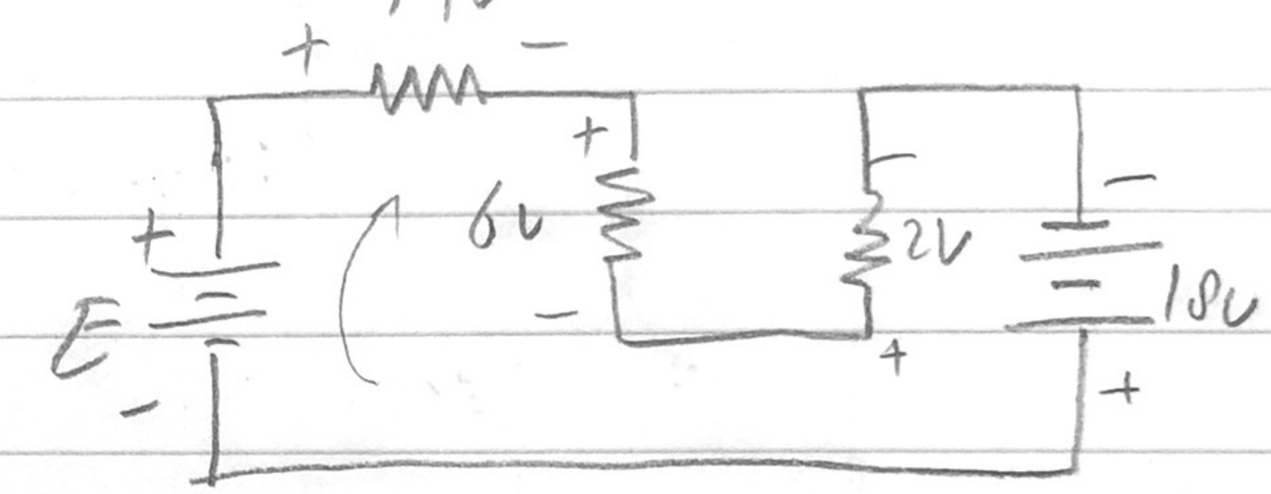
(b)



$60 - 12 - V - 20 = 0$

$V = 28V$

(b) (ii)

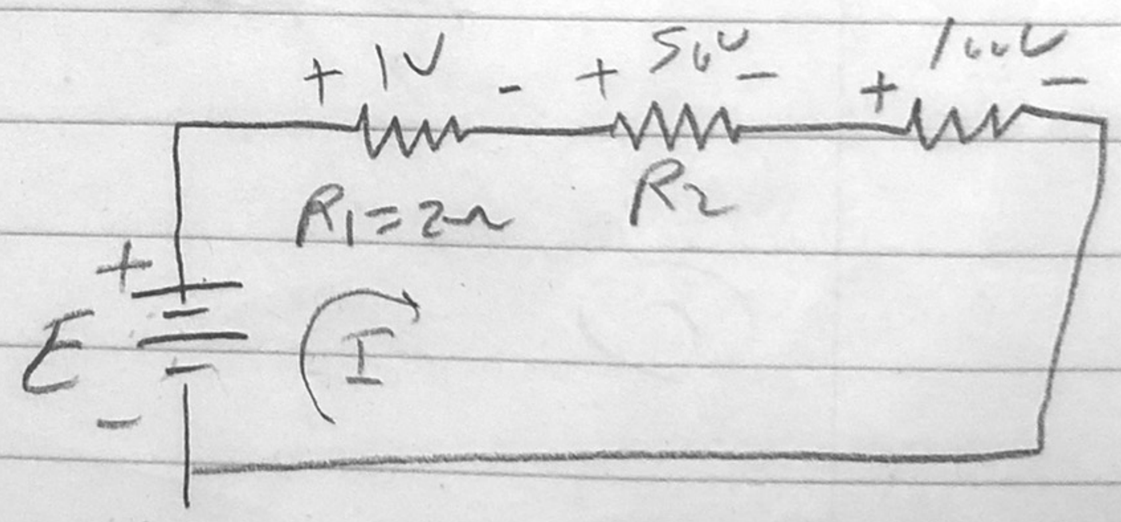


$E - 14 - 6 - 2 + 18 = 0$

$E = 4V$

(24)

[3]



$E - 1 - 50 - 100 = 0$

$E = 151\ V$

$I = \frac{V_1}{R_1} = \frac{1}{2\Omega} = 0.5A$

$V_2 = E\ R_2$

$V_2 = IR_2 \Rightarrow R_2 = \frac{V_2}{I}$

$R_2 = \frac{50}{0.5} = 100\Omega$

$V_3 = IR_3 \Rightarrow R_3 = \frac{V_3}{I}$

$R_3 = \frac{100}{0.5} = 200\Omega$

H.W

Hw2-

(2) (a) $R_t = 1.69\,k\Omega$ (b) $R_t = 12.1\,\Omega$

(c) $R_t = 31.8\,k\Omega$ (d) $R_t = 2158\,\Omega$
$R_t = 2.158\,k\Omega$

(4) (a) $R_3 = 1\,M\Omega$

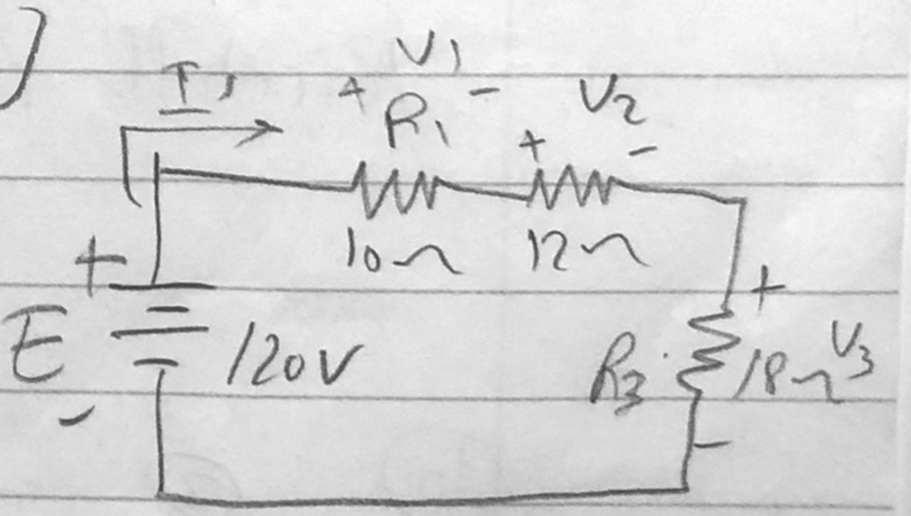
(b) $R_1 = 1000\,\Omega$

(c) $R_t = 1201.1\,k\Omega$
$= 1.2011\,M\Omega$

(7) (a) $R_t = 40\,\Omega$

(b) $I_s = \frac{E}{R_t} = \frac{120}{40} = 3\,A$

(c) $V_1 = 3 \times 10 = 30\,V$
$V_2 = 3 \times 12 = 36\,V$
$V_3 = 3 \times 18 = 54\,V$



(16) (3)

$I = \frac{24}{6+R}$, $V = \frac{24R}{6+R}$

$P = IV =$

$24 = \left(\frac{24}{6+R}\right)\left(\frac{24R}{6+R}\right)$

$1 = \frac{24R}{36+12R+R^2}$

$24R = 36 + 12R + R^2 \Rightarrow R^2 - 12R + 36 = 0$

$(R-6)(R-6) = 0$

$R = 6\,\Omega$