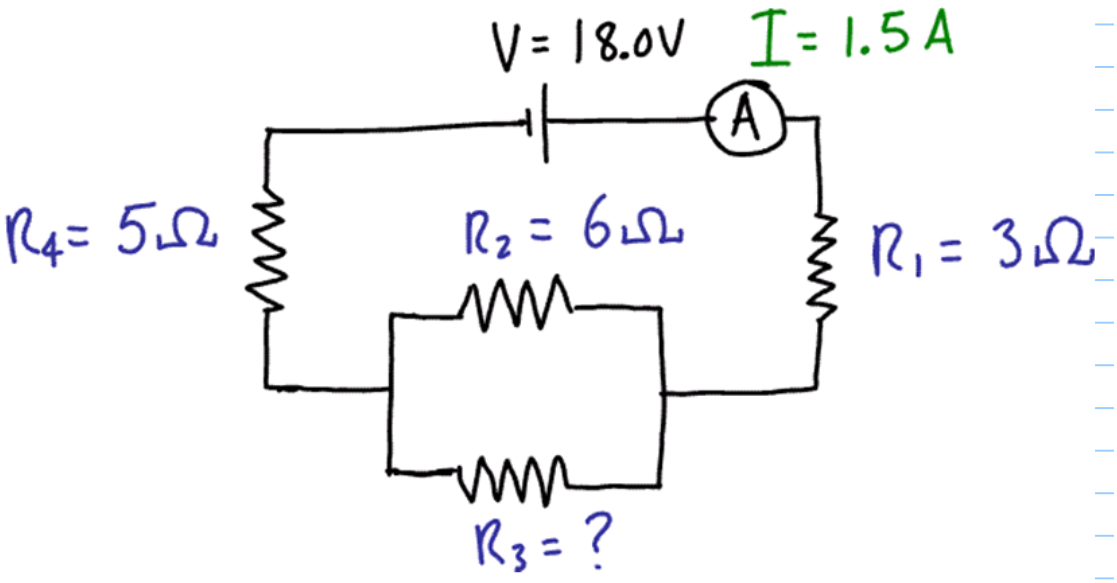
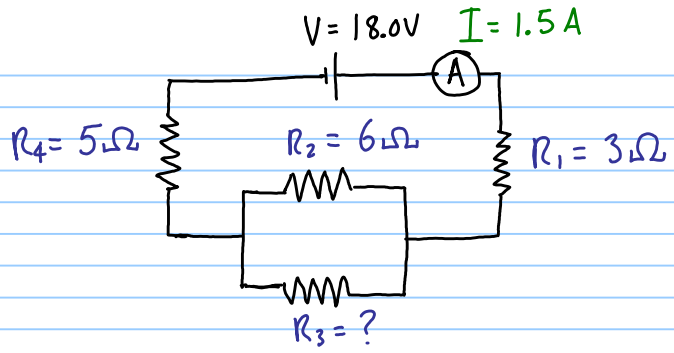
Everybody

Find:

a) V_4
b) R_3
c) I_2
d) P_1
e) P_{total}



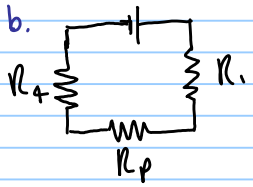


a) $V_4 = I_4 R_4$

$= (1.5A)(5\Omega)$

$= \boxed{7.5\ V}$ ✓

b.



$R_T = \frac{V_T}{I_T} = \frac{18.0V}{1.5A} = 12\Omega$

$R_T = R_1 + R_p + R_4$

$R_p = R_T - R_1 - R_4 = 12\Omega - 3\Omega - 5\Omega = 4\Omega$

$\frac{1}{R_p} = \frac{1}{R_2} + \frac{1}{R_3}$ $\quad \frac{1}{R_3} = \frac{1}{R_p} - \frac{1}{R_2} = \frac{1}{4} - \frac{1}{6} = \frac{2}{24}$

$\boxed{R_3 = 12\Omega}$ ✓

c. $V_1 = I_1 R_1 = (1.5A)(3\Omega) = 4.5\ V$

$V_T = V_1 + V_p + V_4$ $\quad V_p = V_T - V_1 - V_4 = 18 - 4.5 - 7.5$

$= 6\ V$

$I_2 = \frac{V_2}{R_2} = \frac{6V}{6\Omega} = \boxed{1.0\ A}$ ✓

d.) $P_1 = I^2 R = (1.5A)^2(3\Omega)$

$= \boxed{6.75\ W}$ ✓

e.) $P_T = I_T V_T = (1.5A)(18V)$

$= \boxed{27\ W}$ ✓