

a)

$$\sum I = 0$$

$$I + 4 - 6 = 0$$

$$I = -4 + 6$$

$$I = 2.00 \text{ A}$$

$$I = 2.00 \text{ A}$$

b) $-(6)(3) - 2R + 28 = 0$

$$-18 - 2R + 28 = 0$$

$$-2R = 18 - 28$$

$$-2R = -10$$

$$R = \frac{-10}{-2} = 5 \Omega$$

$$R = 5.00 \Omega$$

c) $-(6)(3) - (4)(6) + E = 0$

$$-18 - 24 + E = 0$$

$$E = 18 + 24 = 42.0 \text{ V}$$

$$E = 42.0 \text{ V}$$

d) $28 - 3I - 5I = 0$

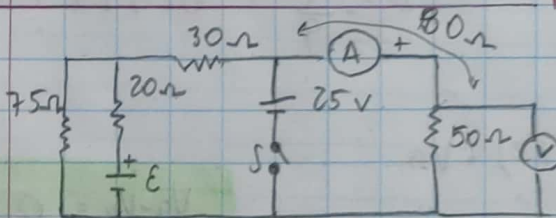
$$-8I = -28$$

$$I = \frac{-28}{-8} = 3.50 \text{ A}$$

$$I = 3.50 \text{ A}$$

P. 26.31

#2



a) $V = 15 \text{ V}$ $V = IR$

$$I = \frac{V}{R} = \frac{15}{50}$$

$$I_{50} = 0.300$$

$$I_{50} = I_{80} = 0.300 \text{ A}$$

$$V_{75} = V_{80} \Rightarrow V_{75} = (0.300)(80)$$

$$V_{75} = 24 \text{ V}$$

$$I_T = 0.300 + 0.300 = 0.600 \text{ A}$$

$$I_{75} = \frac{24}{75} = 0.320 \text{ A}$$

$$R_T = \frac{1}{75} + \frac{1}{80} = 38.7 \Omega$$

$$R_{eq} = 20 \Omega + R_T = 20 \Omega + 38.7 \Omega = 58.7 \Omega$$

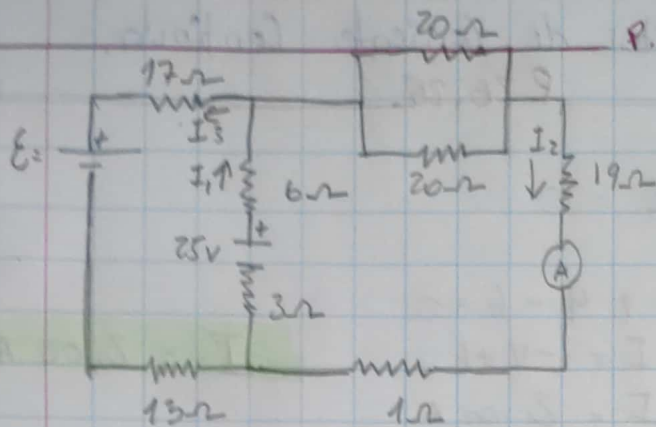
$$E = 36.4 \text{ V}$$

$$E = (58.7)(0.620) = 36.4 \text{ V}$$

b)

$$I = \frac{25}{50} = 0.500 \text{ A}$$

$$I = 0.500 \text{ A}$$



P. 26.34

#3

a) $P = 24 \text{ J/s}$

$P = I^2 R$

$I_1 = \sqrt{\frac{P}{R}} = \sqrt{\frac{24}{6}} = \sqrt{4} = 2 \text{ A}$

$-(2)(3) - (2)(6) + 25 - I_2(10 + 19 + 1) = 0$

$-6 - 12 + 25 - I_2(30) = 0$

$I_2 = \frac{-6 - 12 + 25}{30} = 0.233 \text{ A}$

$I_2 = 0.233 \text{ A}$

b) $I_3 = I_1 - I_2$

$I_3 = 2 - 0.233 = 1.77 \text{ A}$

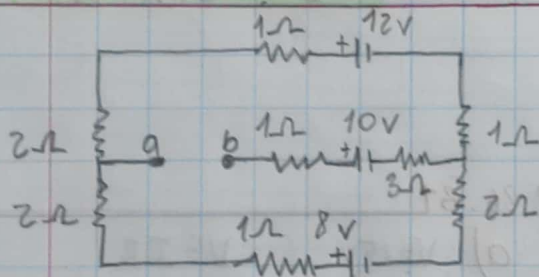
$-(2)(3+6) + 25 - (1.77)(1) - \mathcal{E} - (1.77)(13) = 0$

$-18 + 25 - 30.1 - \mathcal{E} - 23.01 = 0$

$-46.11 - \mathcal{E} = 0$

$\mathcal{E} = 46.11$

$\mathcal{E} = 46.11 \text{ V}$



P. 26.57

#4

a) $12 - I(1+2+2+1) - 8 - I(2+1) = 0$

$12 - 6I - 8 - 3I = 0$

$-9I + 4 = 0$

$I = \frac{4}{9} = 0.4444 \text{ A}$

$V_b - 10\text{V} + 12\text{V} - I(1+1+2) = V_a$

$V_b + 2\text{V} - 4I = V_a$

$V_a - V_b = -4I + 2\text{V}$

$V_a - V_b = -4(0.4444) + 2 = 0.22\text{V}$

$V_a - V_b = 0.22\text{V}$

b) $12 - I_1(1) - I_1(2) - I_2(1) - 10 - I_2(3) - I_1(1) = 0$

$2 - I_1(4) - I_2(4) = 0$

$2 = 4I_1 + 4I_2$

$1 = 2I_1 + 2I_2$

$I_2 = 0.036 \text{ A}$

$-(I_1 - I_2)(2) - (I_1 - I_2)(1) - 8 - (I_1 - I_2)(2) + I_2(3) + 10 + I_2(1) = 0$

$2 - (5)I_1 + 9I_2 = 0$

$I_2 = 0.5 - 0.464$

$I_2 = 0.50 - I_1 \Rightarrow I_2 = 0.036 \text{ A}$