日期：4.11/ / 主题：电分第二章作业

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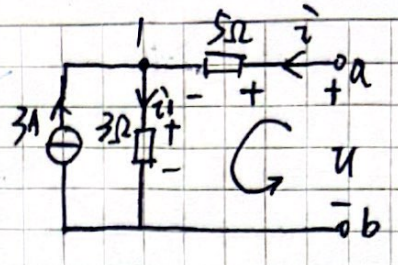
2-1 对节点1用KCL：$i_1 = 3 + i$

对u_{ab}用KVL：$u = i \cdot 5 + (i+3)3$

$= 8i + 9$



2-3 从1端口：$R_{并1} = \frac{4\times4}{4+4} = 2\Omega$

$R_{串1} = 22 + 2 = 24\Omega$

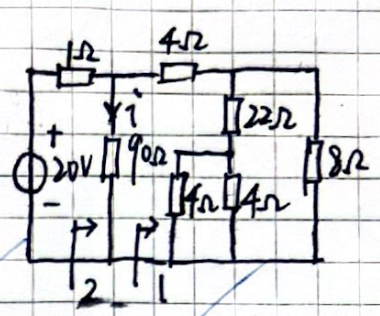
$R_{并2} = \frac{24\times8}{24+8} = 6\Omega$

$R_1 = R_{串2} = 4 + 6 = 10\Omega$

从2端口：$R_{并3} = \frac{90\times10}{90+10} = 9\Omega$

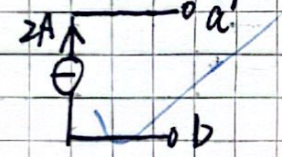
$R_2 = R_{串3} = 1 + 9 = 10\Omega$

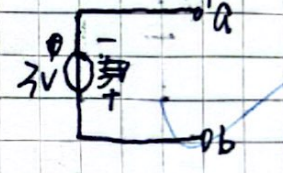
$I_2 = \frac{20}{10} = 2A$



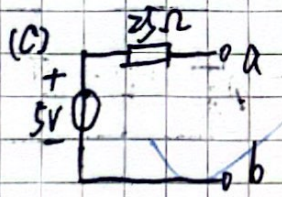
$i = I_2 \times \frac{10}{90+10} = 0.2A$

2-6 (a) 与电流源串联元件无关 (b) 与电压源并联元件无关

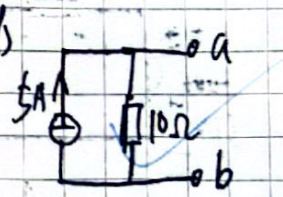




(c)



(d)



2-7 对节点1,2使用KCL：

$i_1 = 7 - i$

$i_2 = 3 - i$

对u_1使用KVL：

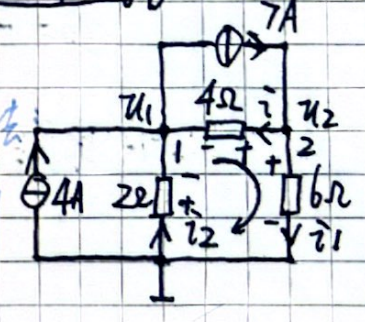
$u_1 = -2(3-i)$

$u_1 = -4i + 6(7-i)$

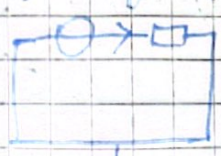
$\therefore u_1 = 2V$

对u_2使用KVL：

$u_2 = 6(7-i) = 18V$



法二：等效法



$\therefore i = 4A \quad i_1 = 3A \quad i_2 = -1A$

总结：

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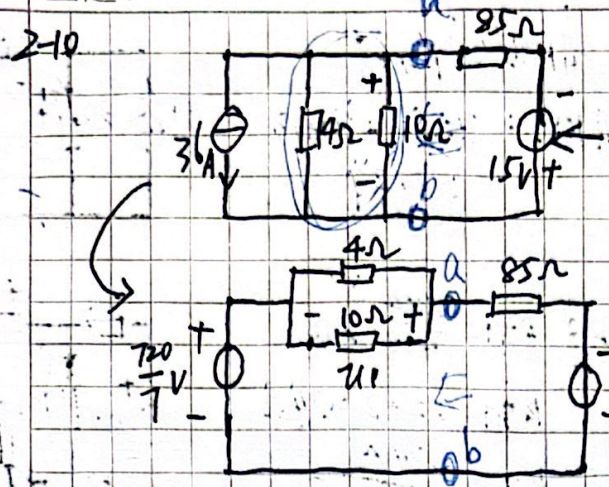
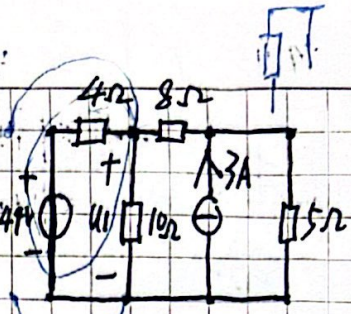
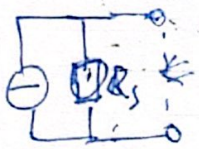
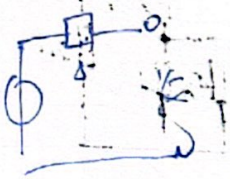
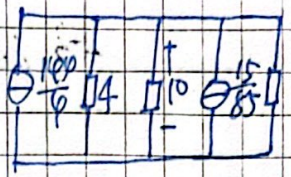
2-10











$U_{总} = \frac{20}{7} + 15 = \frac{825}{7}$ V $R_{并} = \frac{20}{7}\Omega$

$\therefore U_{并} = U_{总} \times \frac{\frac{20}{7}}{\frac{20}{7}+85} = \frac{3300}{861}$ V

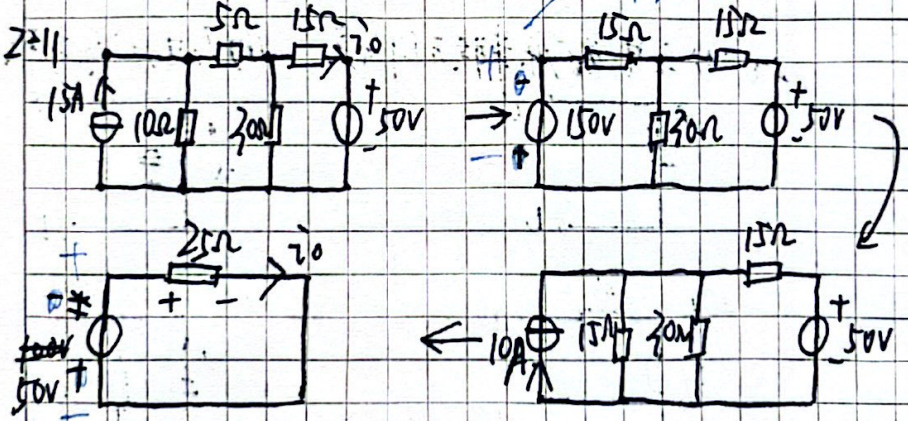
$I = \frac{U}{R} = U \cdot \frac{1}{R}$

$\frac{14}{4} + \frac{15}{8.5} = U(\frac{1}{4} + \frac{1}{8.5} + \frac{1}{10})$

$U = 100$V

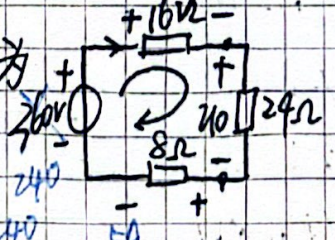
$U_1 = \frac{3300}{861}$ V ?

2-11



$I_0 = -2A$ 2A

2-12 电路可化简为



(1) $I = \frac{360}{16+24+8} = 7.5$A

$KVL: 16 \times 7.5 + U_0 + 8 \times 7.5 = 360 \quad \therefore U_0 = 180$V

求予一定要回原电路

总结 电流源: 求U $P = UI$

电压源: 求I $P = UI$

$P_V = 300 \times 7.5 = 2250$W 3750W

$P_A = 60 \times 7.5 = 450$W -1300W