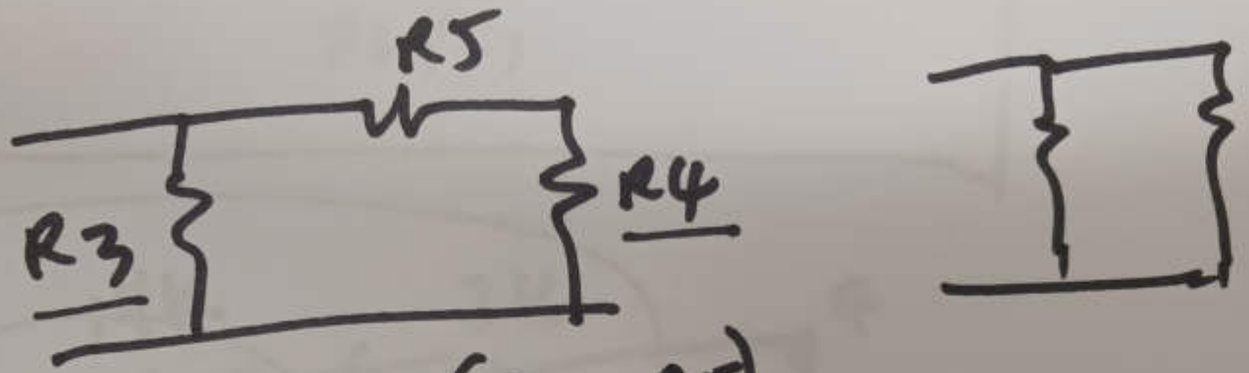
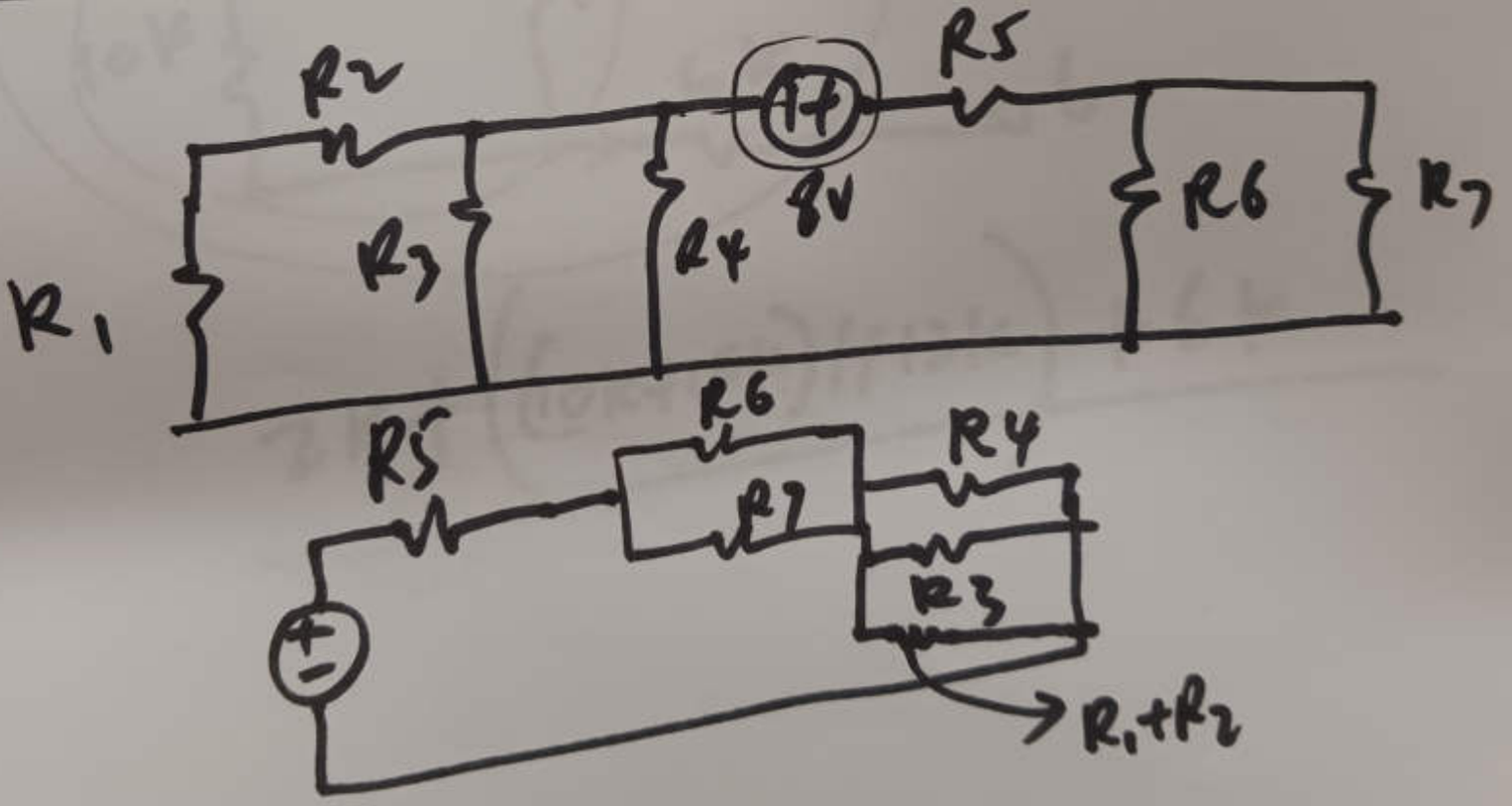
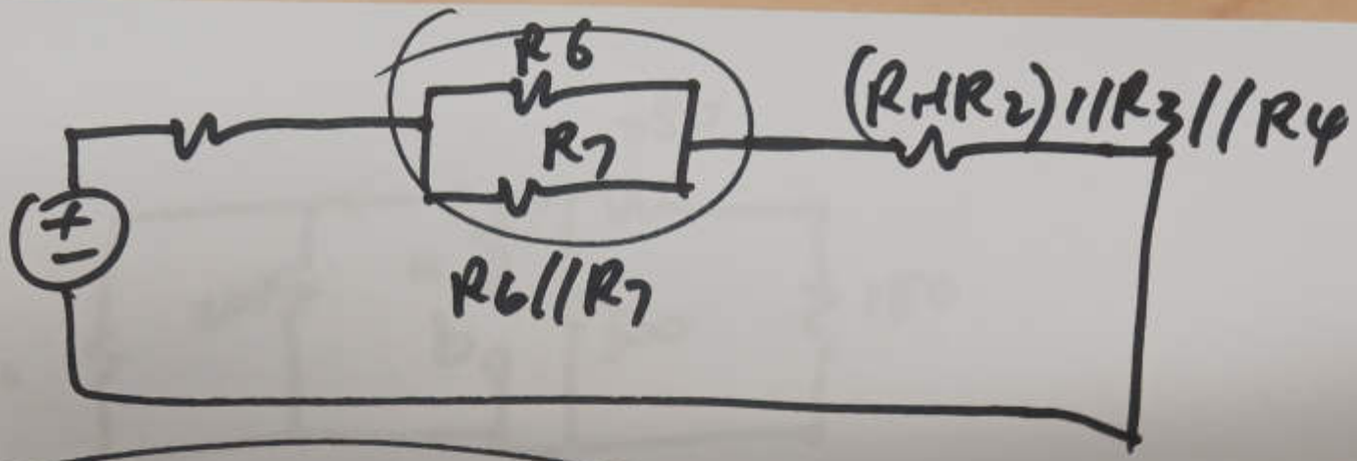
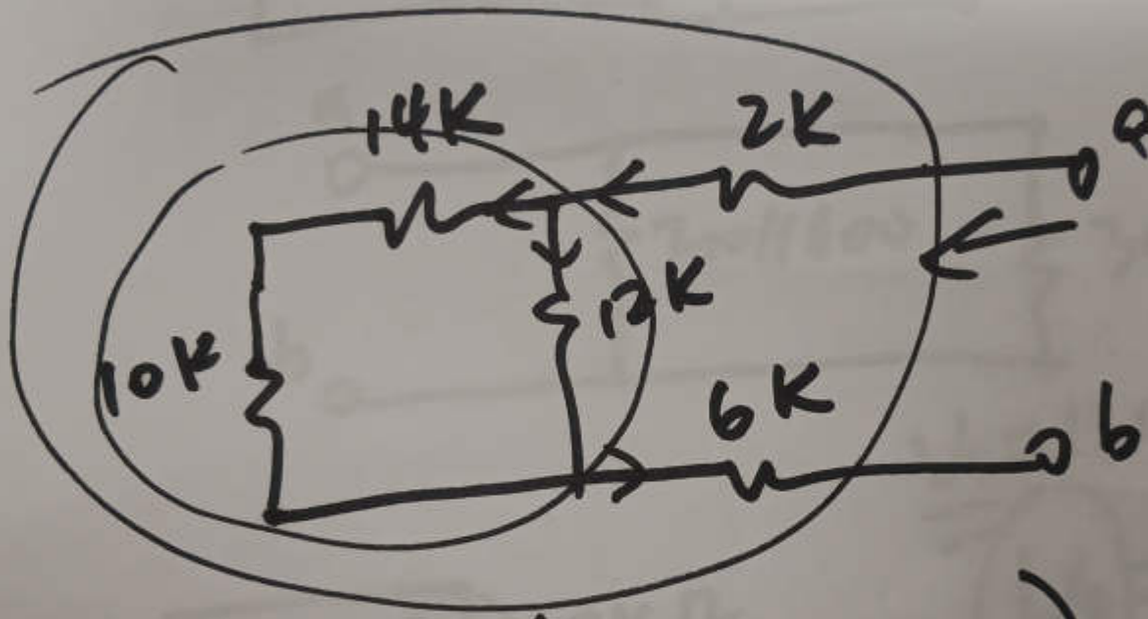
HW3



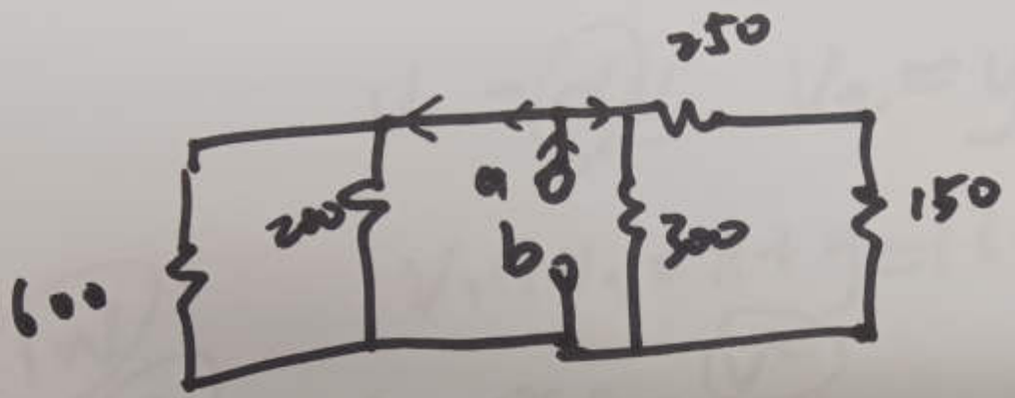
$R_3 \,||\, (R_4 + R_5)$

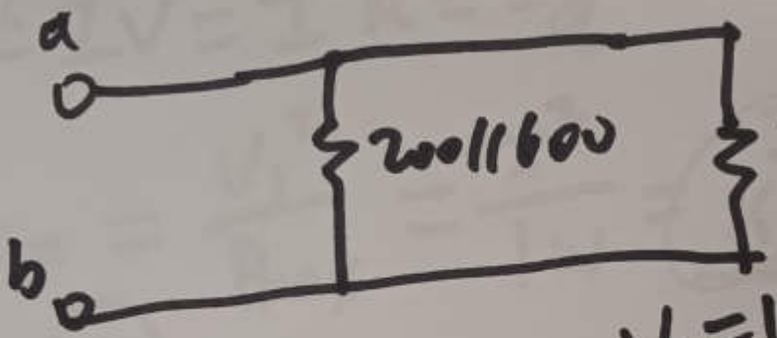






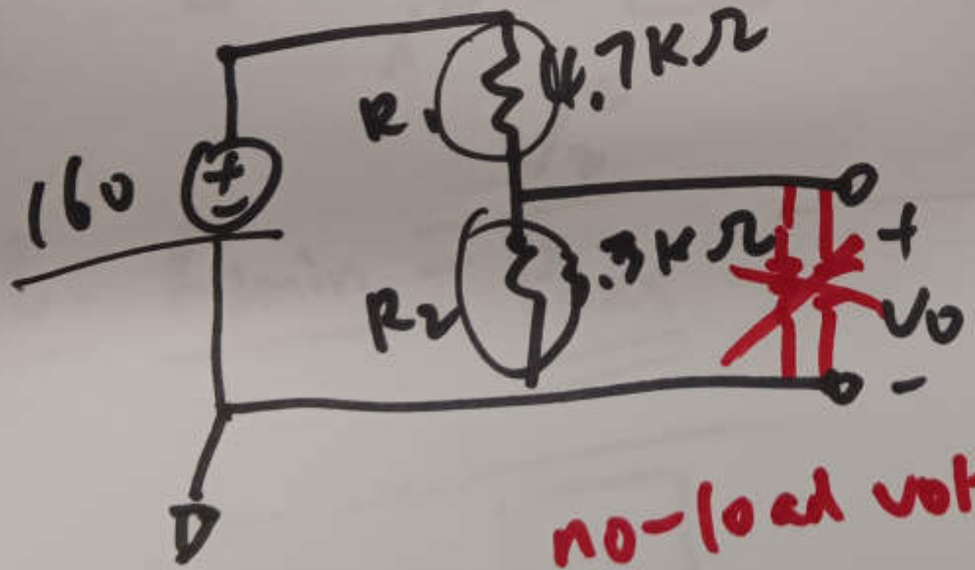
$$2K + \left((10K + 14K) // 12K \right) + 6K$$





$V_1 = 160 - V_o$

$$V_o = 160 \cdot \frac{3.3K\Omega}{4.7K + 3.3K}$$



R_{1min} and R_{2min} if P_{max} 1.0W

no-load voltage

(3)

$V_1 = x\,V \quad V_2 = y\,V.$

$V_1 + V_2 = x + y = 160\,V$

1W

$P = IV = I^2R = \frac{V^2}{R}$

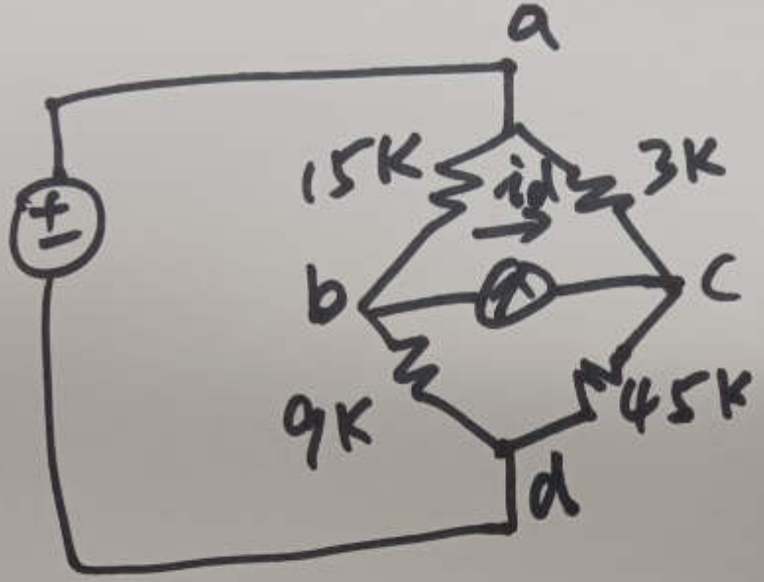
Case 1: $R_{1min} = \frac{V_1^2}{P_{max}} = \frac{x^2}{1W} = x^2\,\Omega$

$I = \frac{V_1}{x^2} = \square\,A \Rightarrow R_2 = \frac{V_2}{I} = \square\,\Omega$

Case 2: $R_{2min} = \frac{V_2^2}{P_{max}}$ —— $\square$

$R_1 = \square$

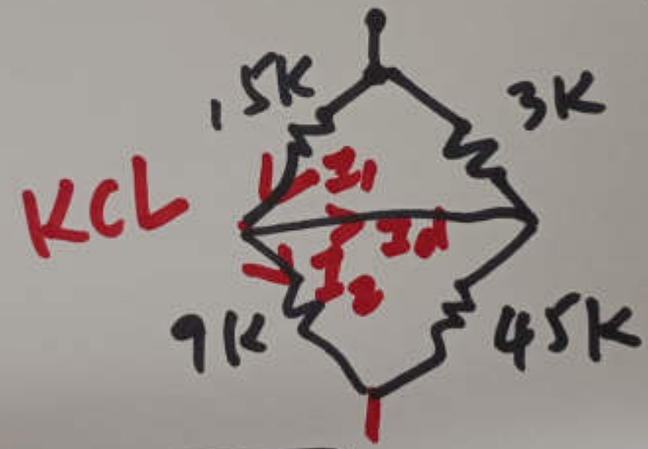
(4)

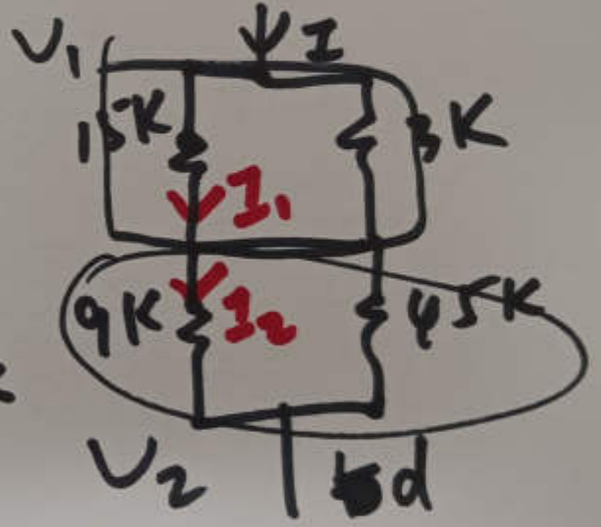


$V_{bc} \Rightarrow 0$

i_d ?

$V_{ad} = V_S$





$$I = \frac{V_S}{\frac{15K \cdot 3K}{15K+3K} + \frac{9K \cdot 45K}{9K+45K}}$$

$$V_1 = I \cdot \frac{15K \cdot 3K}{15K+3K} \qquad V_2 = I \cdot \frac{9K \cdot 45K}{9K+45K}$$

(5)