Cicuit to Analyze:

$V_s = 10V$, $R_1 = 1.5k\Omega$, $R_3 = 1k\Omega$, R_L, $R_2 = 2.2k\Omega$, $R_4 = 680\Omega$
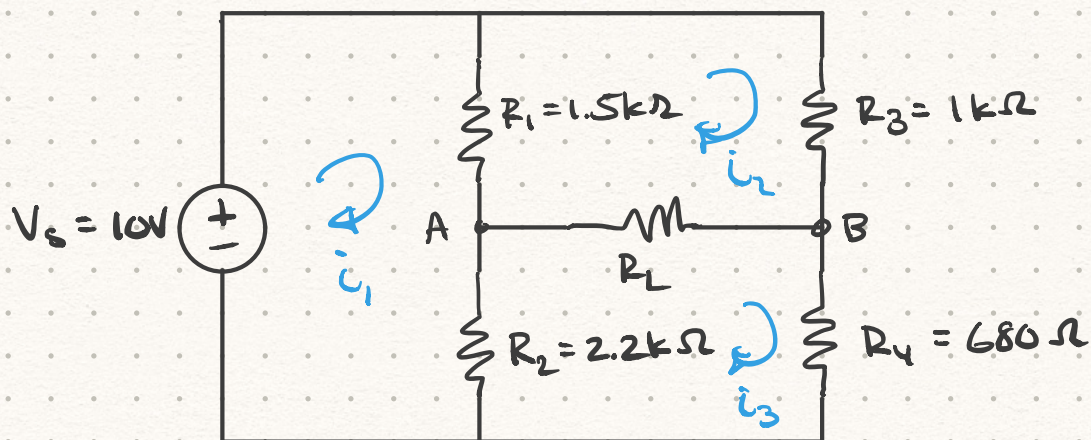
R_L values to test:

a) 390Ω
b) 680Ω
c) $1.2k\Omega$
d) $2.2k\Omega$
e) $3.9k\Omega$
f) $\infty\Omega$, $10e7$ in Python

$$-10 + R_1(i_1 - i_2) + R_2(i_1 - i_3) = 0$$
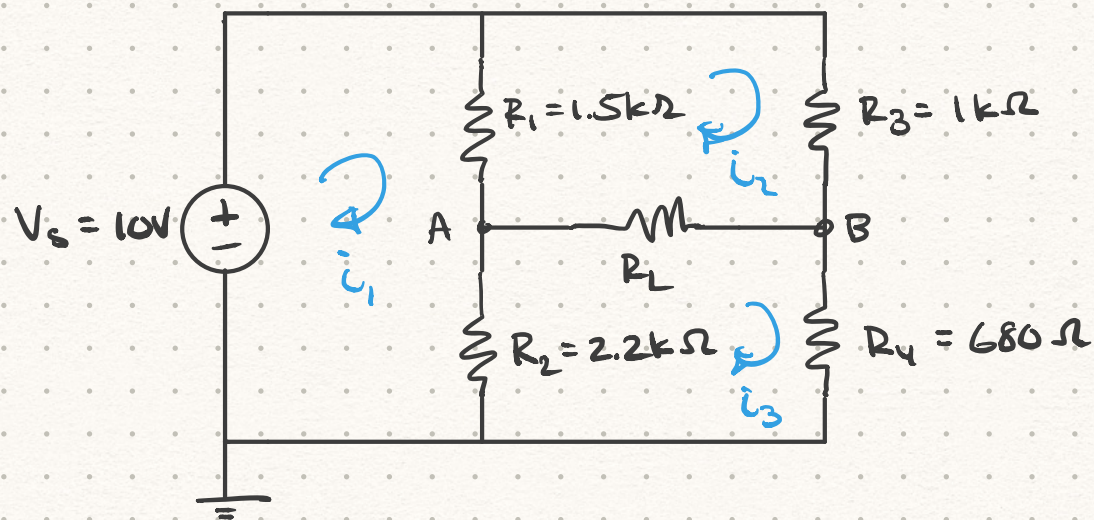
$$R_1(i_2 - i_1) + R_3(i_2) + R_L(i_2 - i_3) = 0$$

$$R_2(i_3 - i_1) + R_L(i_3 - i_2) + R_4(i_3) = 0$$

i_1	i_2	i_3	
$R_1 + R_2$	$-R_1$	$-R_2$	10
$-R_1$	$R_1 + R_3 + R_L$	$-R_L$	0
$-R_2$	$-R_L$	$R_2 + R_L + R_4$	0

$$\frac{\ominus R}{2}$$

$\downarrow$

$V_S = 10V$ $\left(\begin{array}{c}+\\-\end{array}\right)$ i_1

$R_1 = 1.5k\Omega$ i_2 $R_3 = 1k\Omega$

A R_L B

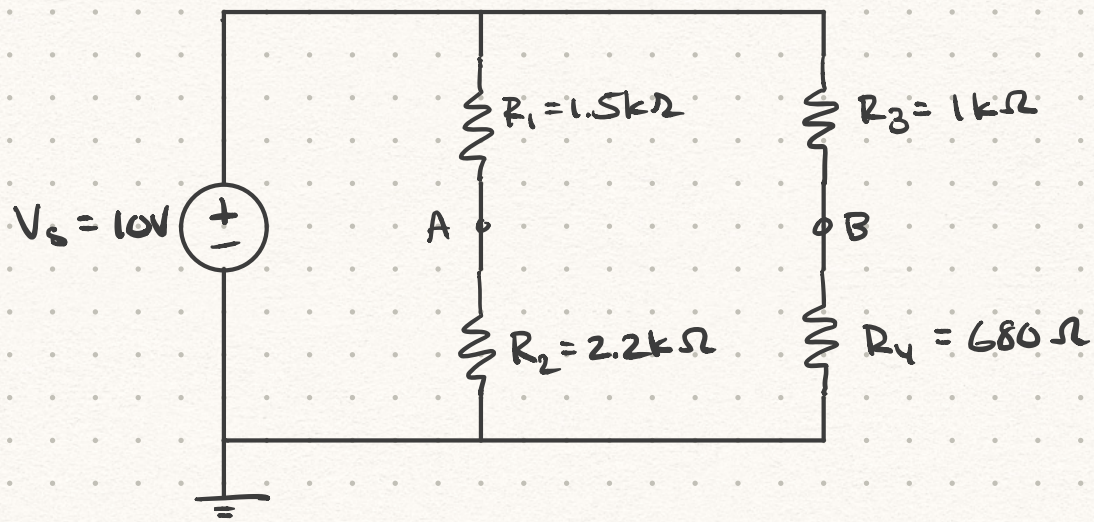$R_2 = 2.2k\Omega$ i_3 $R_4 = 680\Omega$

$$\frac{V_A}{R_2} + \frac{V_A - V_S}{R_1} + \frac{V_A - V_B}{R_L} = 0$$

$$\frac{V_B}{R_4} + \frac{V_B - V_S}{R_3} + \frac{V_B - V_A}{R_L} = 0$$

V_A	V_B	
$\frac{1}{R_2} + \frac{1}{R_1} + \frac{1}{R_L}$	$-\frac{1}{R_L}$	$\frac{V_S}{R_1}$
$-\frac{1}{R_L}$	$\frac{1}{R_4} + \frac{1}{R_3} + \frac{1}{R_L}$	$\frac{V_S}{R_3}$

PART B

$$R_{TH} = R_1 \| R_2 + R_3 \| R_4 =$$