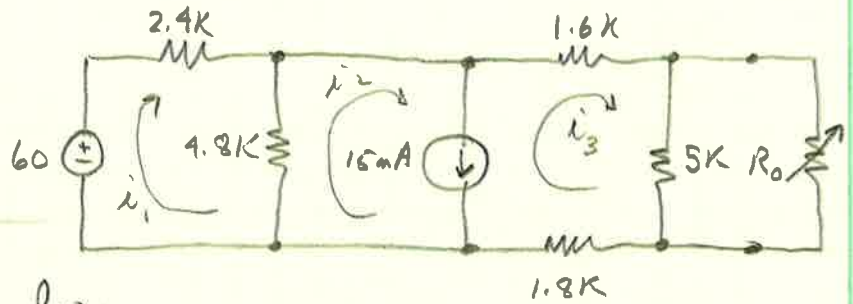


Find R_0 to
Deliver Maximum
power.

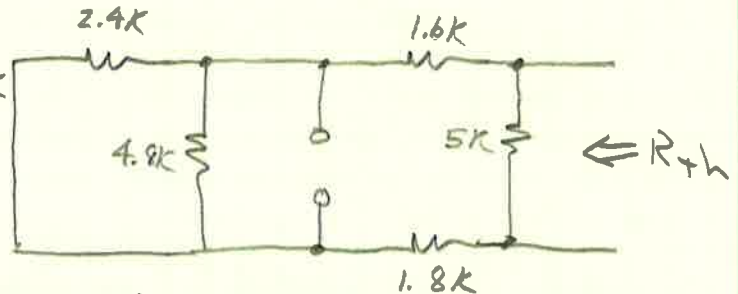


a) that means finding
 R_{th} + setting it = R_0

$$R_{th} = [(2.4k \parallel 4.8k) + 1.6k + 1.8k] \parallel 5k$$

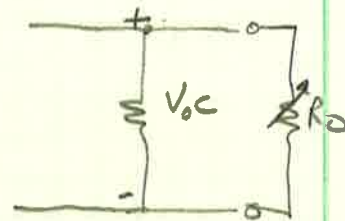
$$= 2.5k$$

$$R_0 = 2.5k$$



b) Find max power delivered to R_0 .

must solve for V_{th} .
Can use: mesh analysis
node
Source transformation:



mesh: $i_1: -60 + 2.4i_1 + 4.8(i_1 - i_2) = 0$

$$15mA = i_2 - i_3$$

$$4.8(i_2 - i_1) + 1.6(i_2) + 5i_3 + 1.8i_3 = 0 \quad \text{Super mesh}$$

Solving, $i_1 = 19.9mA$
 $i_2 = 16.6mA$
 $i_3 = 1.6mA$

$$V_{th} = V_{oc} = i_3(5) = 8V$$

$$P_{max} = \frac{V^2}{R} = \frac{[\frac{1}{2}(8)]^2}{2.5k}$$

$$P_{max} = 6.4mW$$

