

生機系電工學第五次隨堂練習 2011/03/23

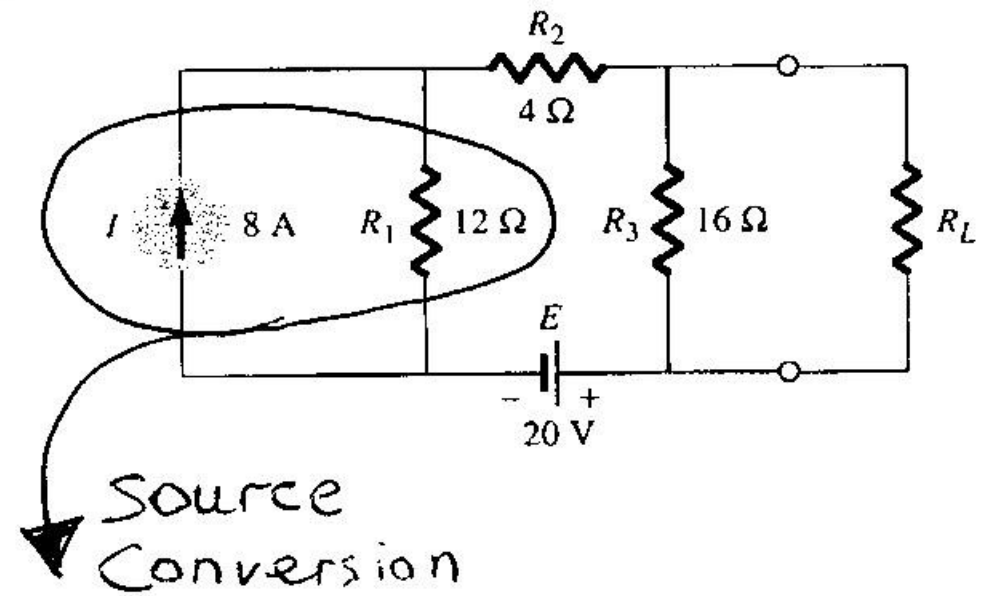
學號：_____

姓名：_____

(Thévenin network)

Find the Thévenin network for the network external to the resistor R_L .

Find R_L to receive maximum power



$$R_{Th} = (R_p + R_2) \parallel R_3$$

$$= (12 \Omega + 4 \Omega) \parallel 16 \Omega$$

$$= 8 \Omega$$

$$E_{Th} = (E_1 - E) \times \frac{R_3}{R_p + R_2 + R_3}$$

$$= \dots$$

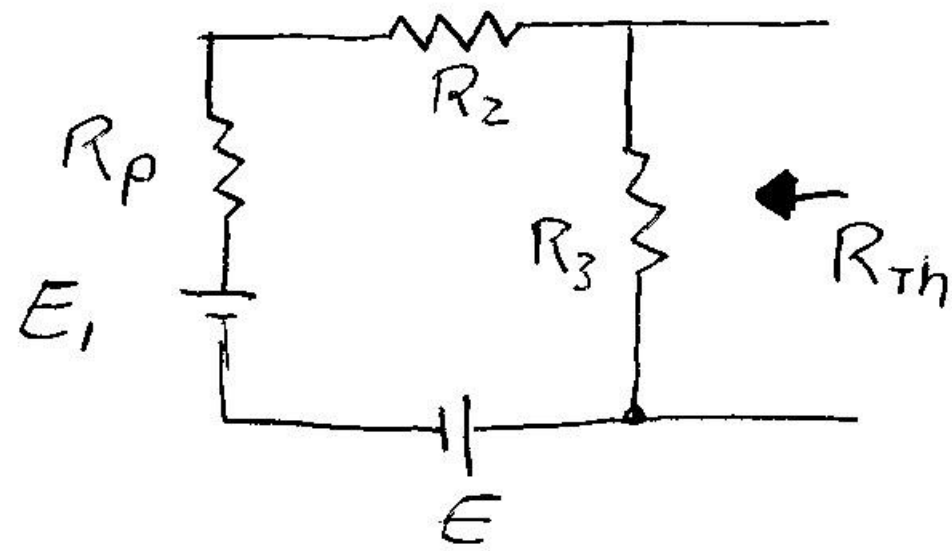
$$= 38 \text{ V}$$

$$R_L = R_{Th} \text{ (max. power)}$$

$$= 8 \Omega$$

$$P_{max} = \left(\frac{E_{Th}}{R_{Th} + R_L} \right)^2 \cdot R_L$$

$$= 45.125 \text{ W}$$



$$R_p = R_1 = 12 \Omega$$

$$E_1 = I \times R_1 = 96 \text{ V}$$

