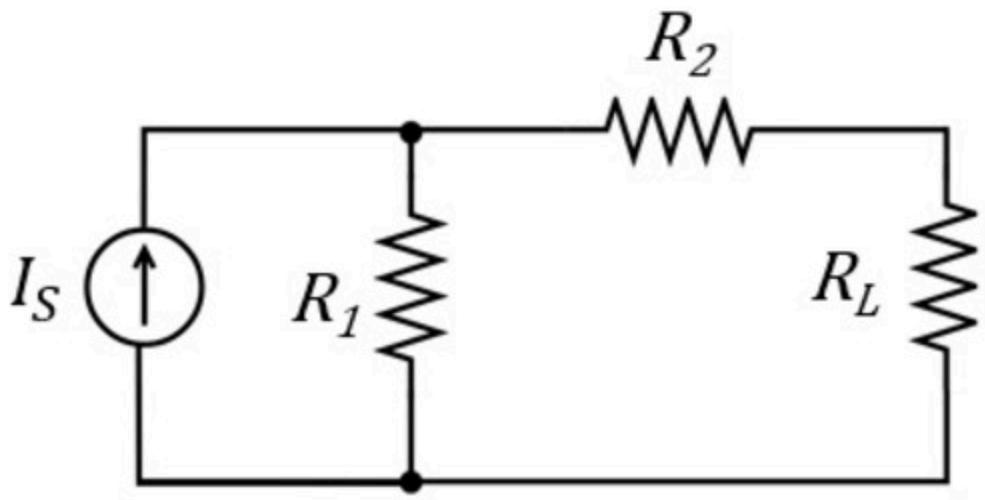
Circuit theorems 007

Unlimited Attempts.

Find the R_L for maximum power transfer.

Find the max power transferred to R_L.



Given Variables:

Is : 12 A

R1 : 4 ohm

R2 : 12 ohm

Calculate the following:

RL (ohm) :

Pmax (W) :

Hint: Replace the circuit (without the load) by its Thevenin model.

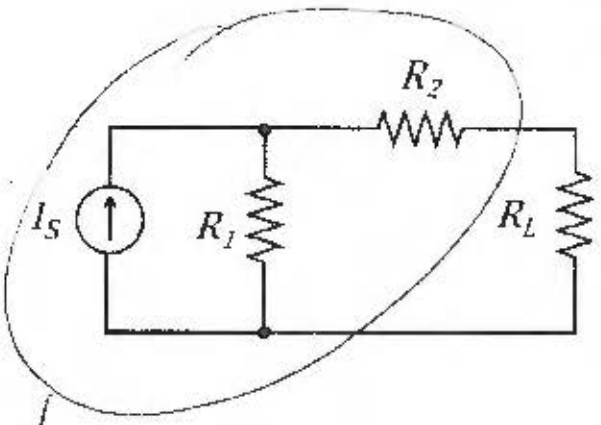
Find the R_L for maximum power transfer.

Given I_S , find the max power transferred to R_L.

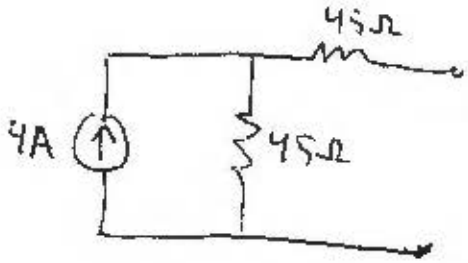
Is = 4 A

R1 = 45 ohm

R2 = 45 ohm

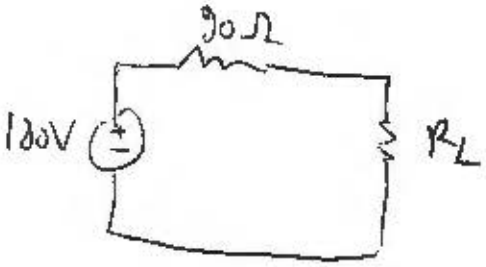


→ FIND THEVENIN MODEL



$V_{OC} = 4 \cdot 45 = 180V$

$R_{TH} = 45 + 45 = 90\Omega$



FOR MAX POWER TRANSFER

$R_L = R_{TH} = 90\Omega$

$R_L = 90\Omega$

$P = R_L \cdot i^2 \qquad i = \frac{180}{90 + R_L} = 1A$

$P_{MAX} = 90W$