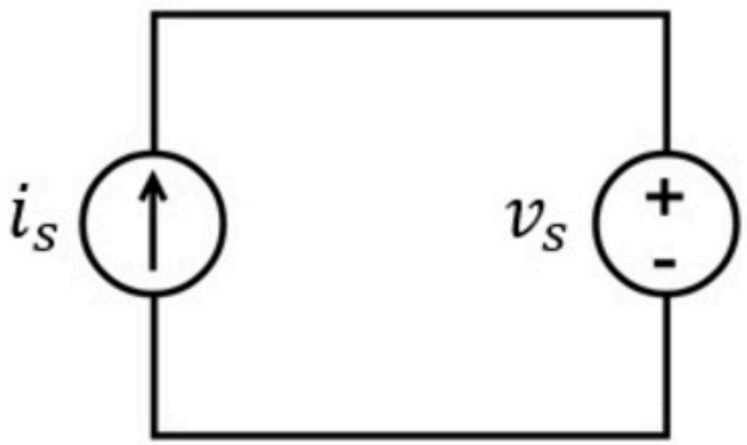
Basic concepts 007

Problem has been graded.

Find the power P_1 supplied by the current source and the power P_2 supplied by the voltage source.



Given Variables:

v_s : 10 V

i_s : 6 A

Calculate the following:

P_1 (W) :

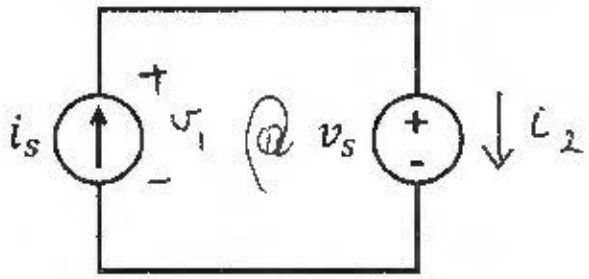
P_2 (W) :

> Hint: The voltage across a current source can be non-zero

Find the power P_1 supplied by the current source and the power P_2 supplied by the voltage source.

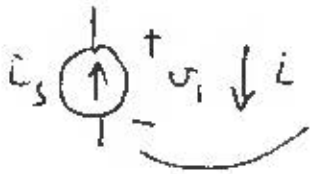
Vs = 10 V

Is = 4 A



KVL ① : $v_1 = v_s = 10\,V$

KCL : $i_2 = i_s = 4\,A$

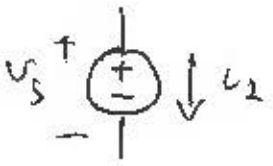


for passive sign convention

$P_1 = v_1 \cdot i = 10\,(-4) = -40\,W$ received

$i = -i_s = -4A$

$P_1 = 40\,W$ supplied



already passive sign convention

$P_2 = v_s \cdot i_2 = 10\ 4 = 40\,W$ received

$P_2 = -40\,W$ supplied

Check : $\sum P_{\text{received}} = \sum P_{\text{supplied}} \Rightarrow 0 = 40 - 40$

OK