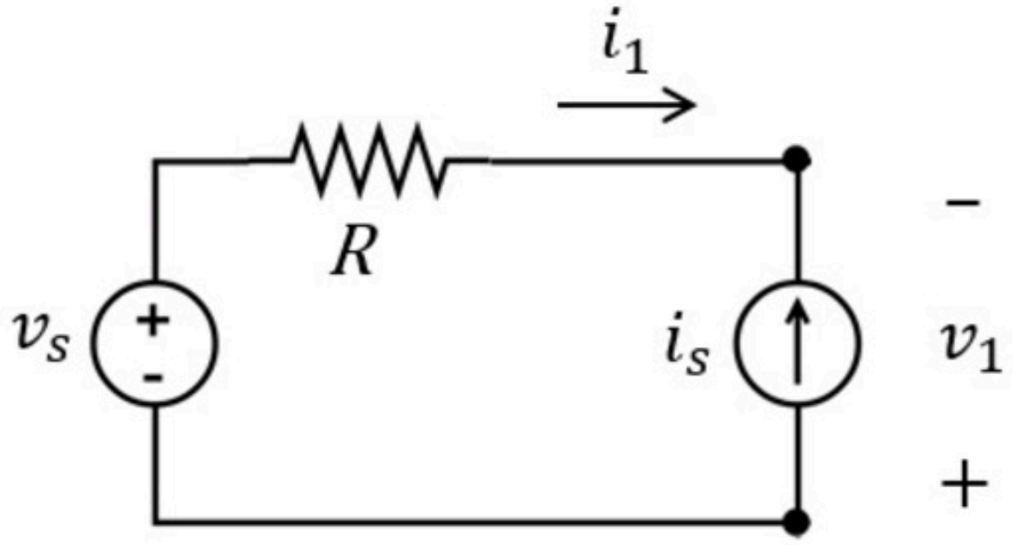
Basic Concepts 008b

Problem has been graded.

The current source supplies 100 W of power.

What is the current i_1?
What is the voltage v_1?
What is the value of the voltage source v_s?



Given Variables:

R : 5 ohm

i_s : 10 A

Calculate the following:

i1 (A) :

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v1 (V) :

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vs (V) :

> Hint: Check the signs

The current source supplies 100 W of power.

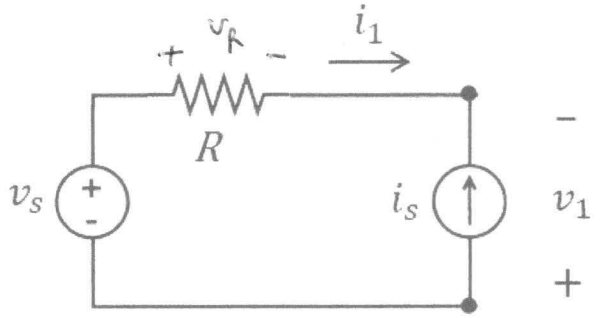
What is the current i_1?

What is the voltage v_1?

What is the value of the voltage source v_s?

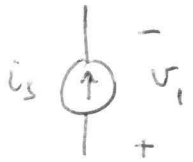
R = 2 Ω

is = 25 A



$i_1 = -i_s$

$\boxed{i_1 = -25\ A}$



PASSIVE SIGN CONVENTION

$P = 100W$ SUPPLIED $\Rightarrow$ $P = -100W$ RECEIVED

$= i_s \cdot v_1$

$\Downarrow$

$v_1 = \frac{-100}{25} = -4V$

$\boxed{v_1 = -4V}$

KVL: $v_s + v_1 = v_R$

$v_s = v_R - v_1 = R \cdot i_1 - v_1 = 2(-25) - (-4)$

$= -50 + 4 = -46$

$\boxed{v_s = -46\ V}$