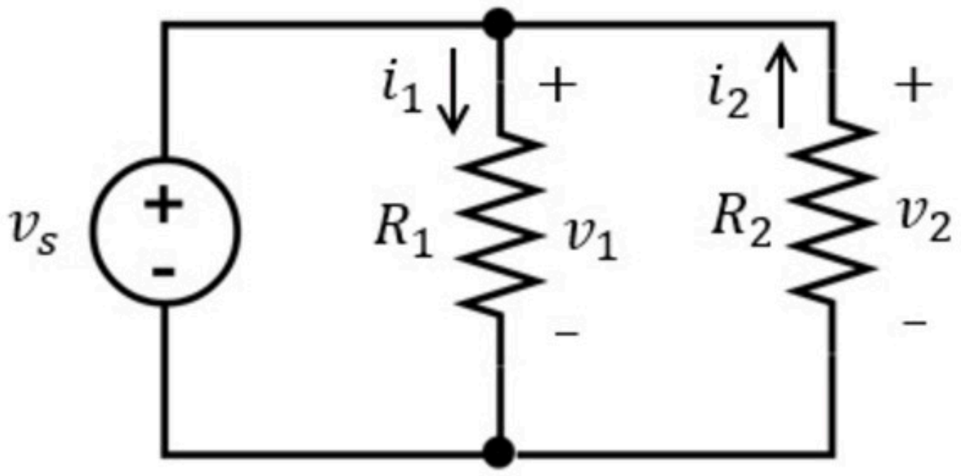
Basic concepts 005

Problem has been graded.

For each of the resistors, calculate the current through them and power received by them.



Given Variables:

v_s : 10 V

R_1 : 10 ohm

R_2 : 4 ohm

Calculate the following:

i_1 (A) :

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i_2 (A) :

P_1 (W) :

P_2 (W) :

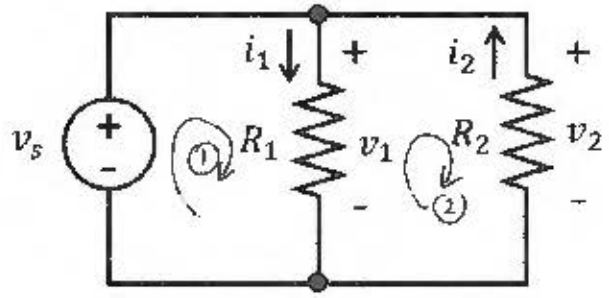
> Hint: Find the voltage across the resistors first

For each of the resistors, calculate the current through them and power received by them.

vs = 20 V

R1 = 20 Ω

R2 = 10 Ω



KVL ①: $v_s = v_1 \Rightarrow v_1 = 20V$

KVL ②: $v_1 = v_2 \Rightarrow v_2 = 20V$

$i_1 = \frac{v_1}{R_1} = \frac{20}{20} \Rightarrow \boxed{i_1 = 1A}$

$i_2 = \frac{-v_2}{R_2} = \frac{-20}{10} \Rightarrow \boxed{i_2 = -2A}$

$p_1 = \frac{v_1^2}{R_1} = \frac{400}{20} \Rightarrow \boxed{p_1 = 20W}$ received

$p_2 = \frac{v_2^2}{R_2} = \frac{400}{10} \Rightarrow \boxed{p_2 = 40W}$ received

or could have used

$p = R \cdot i^2$ or $p = i \cdot v$