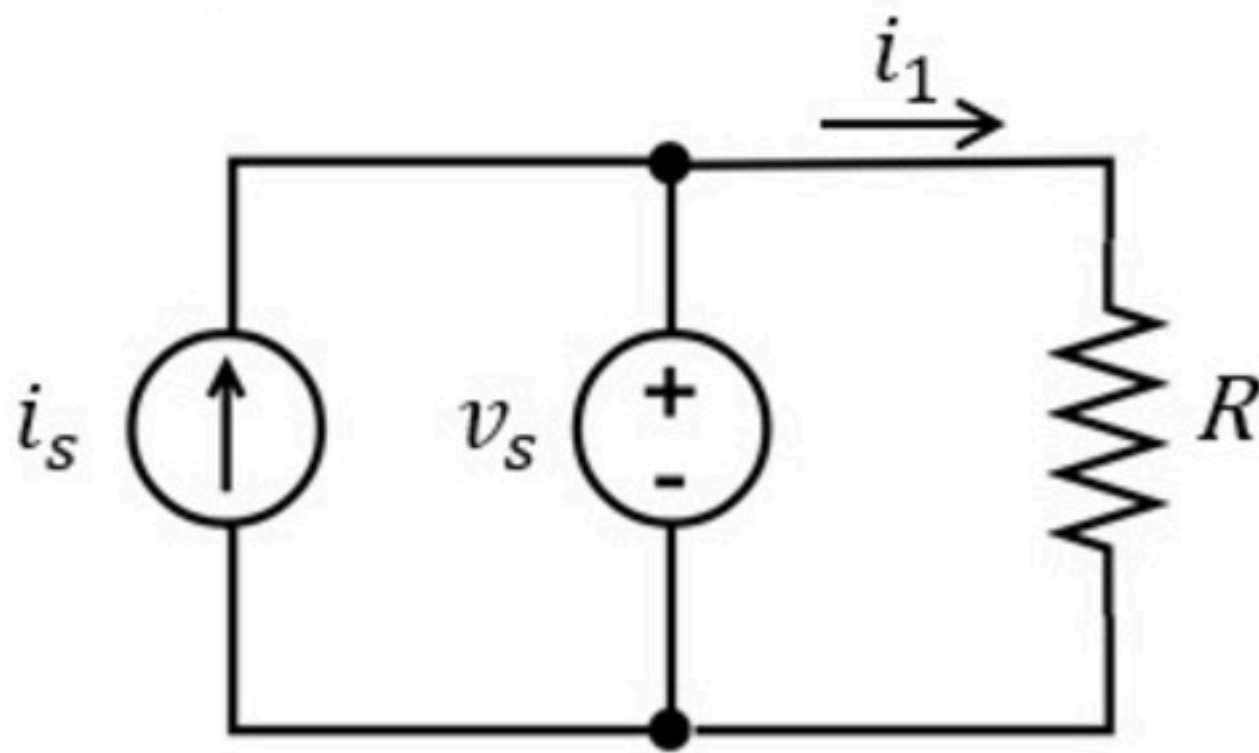


# Basic concepts 006

Problem has been graded.

Find the current  $i_1$  and the power  $P_1$  received by the resistor.

Then change the current source to 5A. Recalculate the current  $i_1$  (renaming it to  $i_2$ ) and the power  $P_2$  received by the resistor.



Given Variables:

$v_s$  : 16 V

$i_s$  : 4 A

$R$  : 8 ohm

Calculate the following:

$i_1$  (A) :

$P_1$  (W) :

$i_2$  (A) :

$P_2$  (W) :

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

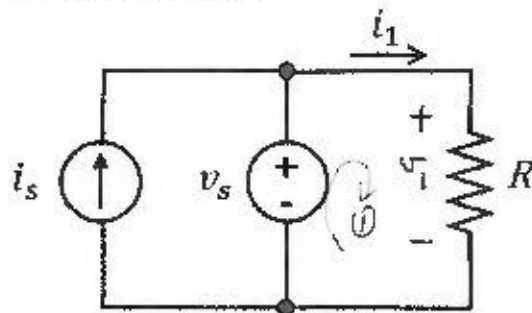
Find the current  $i_1$  and the power  $P_1$  received by the resistor.

$$V_s = 16 \text{ V}$$

Then change the current source to 5A. Recalculate the current  $i_1$  (renaming it to  $i_2$ ) and the power  $P_2$  received by the resistor.

$$I_s = 4 \text{ A}$$

$$R = 16 \Omega$$



$$\text{KVL } \textcircled{1} : V_s = V_1 \Rightarrow V_1 = 16 \text{ V}$$

$$I_1 = \frac{V_1}{R} = \frac{16}{16} \Rightarrow \boxed{I_1 = 1 \text{ A}}$$

$$P_1 = I_1^2 \cdot R = 1^2 \cdot 16 \Rightarrow \boxed{P_1 = 16 \text{ W}}$$

received

When  $I_s = 5 \text{ A}$

$$V_1 \text{ still the same. } V_1 = 16 \text{ V} \Rightarrow I_2 = \frac{V_1}{R}$$

$$\boxed{I_2 = 1 \text{ A}}$$

$$P_2 = I_2^2 R$$

$$\boxed{P_2 = 16 \text{ W}}$$

received