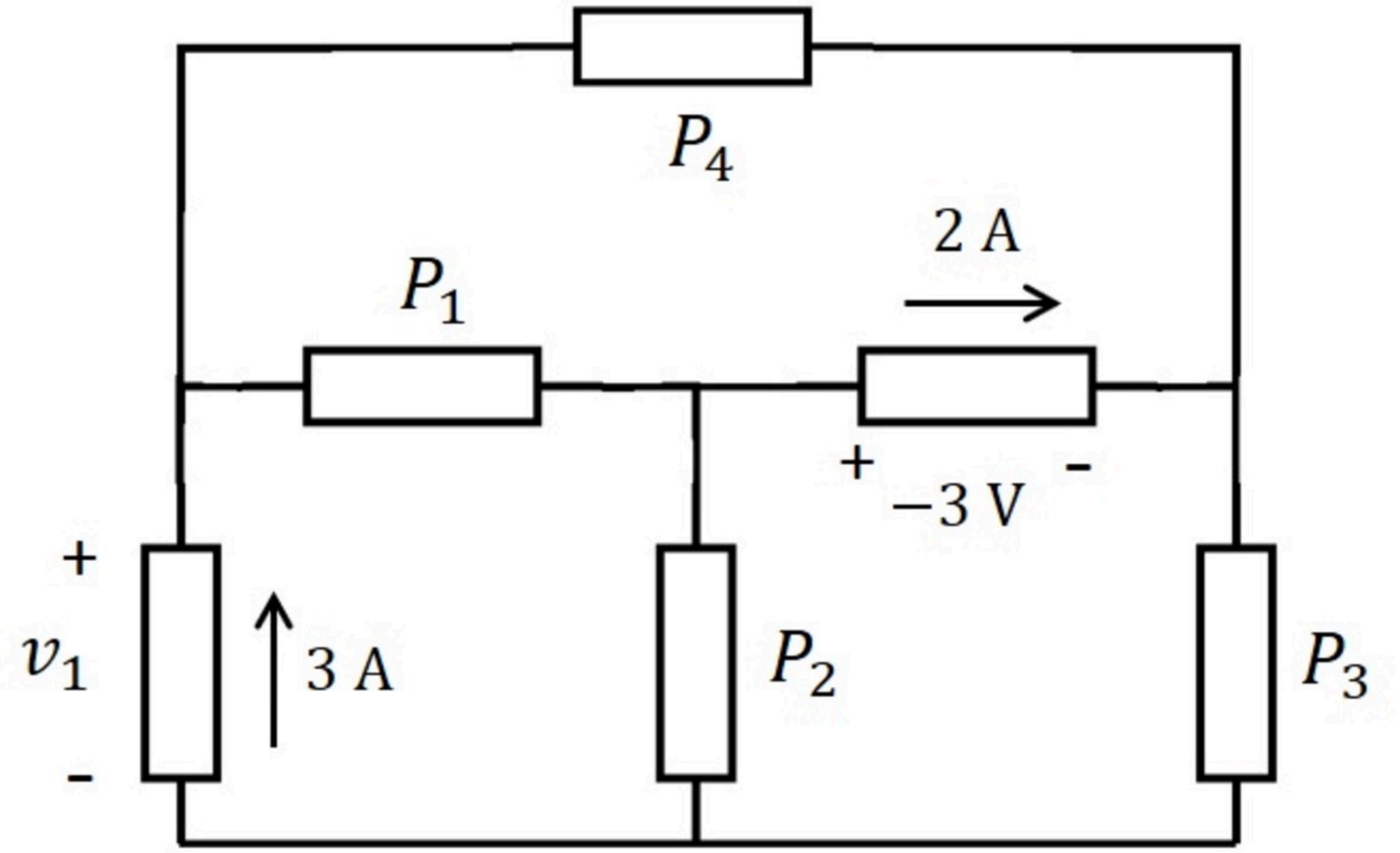
Basic concepts 004

Problem has been graded.

We are given the power received P1, P2, P3 and the voltage v1. Find the power received P4.



Given Variables:

v1 : 2 V

P1 : 16 W

P2 : -4 W

P3 : 1 W

Calculate the following:

P4 (W) :

Hint: Sum of power received is equal to sum of power supplied.

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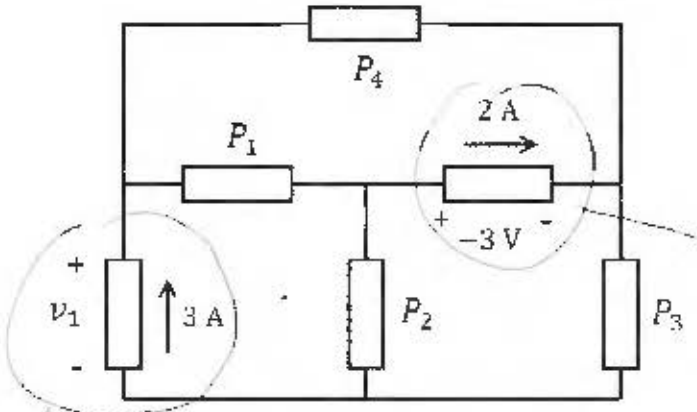


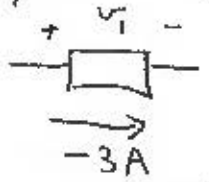
v1 = 1 V

P1 = 14 W

P2 = -5 W

P3 = -4 W

→ passive sign convention



$p = 1 \cdot (-3) = -3$ W received

→ $p = (-3) \cdot 2 = -6$ W received

$$\sum_{\text{received}} p = \sum_{\text{supplied}} p \Rightarrow -3 - 6 + p_1 + p_2 + p_3 + p_4 = 0$$

$$-3 - 6 + 14 - 5 - 4 + p_4 = 0$$

$$\boxed{p_4 = 4\text{W}} \text{ received}$$