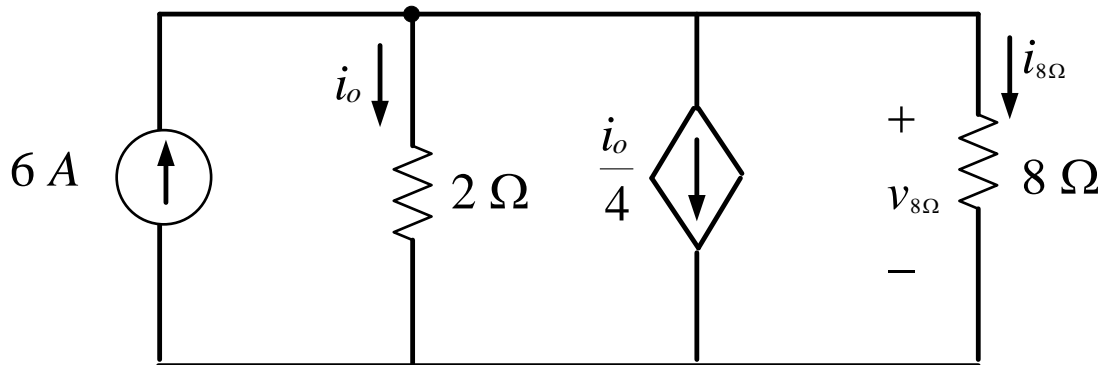


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For the circuit shown below, find the power **delivered** (**or generated**) by the independent and dependent sources?



Solution

$$KCL \quad 6 = i_o + \frac{i_o}{4} + i_{8\Omega} = i_o + \frac{i_o}{4} + \frac{v_{8\Omega}}{8} = i_o + \frac{i_o}{4} + \frac{2i_o}{8} = \frac{3i_o}{2} \Rightarrow i_o = 4A$$

$$P_{6A}^{absorbed} = -(v_{6A})i_{6A} = -(2i_o)(6) = -(8)(6) = -48 W \Rightarrow P_{60V}^{delivered} = 48 W$$

$$P_{\frac{i_o}{4}}^{absorbed} = (v_x)\left(\frac{i_o}{4}\right) = (2i_o)\left(\frac{i_o}{4}\right) = (8)(1) = 8 W \Rightarrow P_{\frac{i_o}{4}}^{delivered} = -8 W$$