

1.37 Is the source V_s in the network in Fig. P1.37 absorbing or supplying power, and how much?

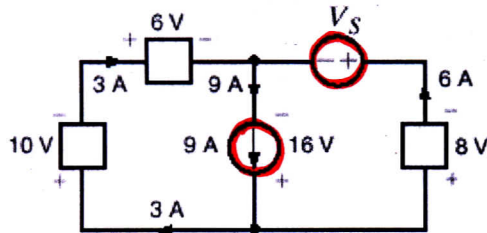


Figure P1.37

SOLUTION:

$$P_{10V} = 10(3) = 30W \text{ absorbed}$$

$$P_{6V} = 6(3) = 18W \text{ absorbed}$$

$$P_{9A} = 16(-9) = -144W$$

$$P_{9A} = 144W \text{ supplied}$$

$$P_{V_s} = V_s(6) = 6V_s \text{ absorbed}$$

$$P_{8V} = 8(6) = 48W \text{ absorbed}$$

$$\text{Power supplied} = \text{Power absorbed}$$

$$P_{9A} = P_{10V} + P_{6V} + P_{V_s} + P_{8V}$$

$$144 = 30 + 18 + 6V_s + 48$$

$$144 = 96 + 6V_s$$

$$24 = 16 + V_s$$

$$V_s = 8V$$

$$P_{V_s} = 8(6) = 48W \text{ absorbed}$$