

**1.18** Determine the amount of power absorbed or supplied by the element in Fig. P1.18 if

- (a)  $V_1 = 9 \text{ V}$  and  $I = 2 \text{ A}$
- (b)  $V_1 = 9 \text{ V}$  and  $I = -3 \text{ A}$
- (c)  $V_1 = -12 \text{ V}$  and  $I = 2 \text{ A}$
- (d)  $V_1 = -12 \text{ V}$  and  $I = -3 \text{ A}$

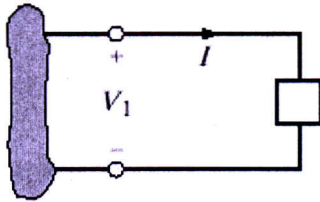


Figure P1.18

**SOLUTION:**

$$\begin{aligned} \text{a) } V_1 &= 9 \text{ V} \\ I &= 2 \text{ A} \\ P &= V_1 I \\ P &= 9(2) \\ P &= 18 \text{ W absorbed} \end{aligned}$$

$$\begin{aligned} \text{b) } V_1 &= 9 \text{ V}, \quad I = -3 \text{ A} \\ P &= V_1 I = 9(-3) \\ P &= -27 \text{ W} \\ P &= 27 \text{ W supplied} \end{aligned}$$

$$\begin{aligned} \text{c) } V_1 &= 12 \text{ V}, \quad I = 2 \text{ A} \\ P &= V_1 I = -12(2) \\ P &= -24 \text{ W} \\ P &= 24 \text{ W supplied} \end{aligned}$$

$$\begin{aligned} \text{d) } V_1 &= -12 \text{ V}, \quad I = -3 \text{ A} \\ P &= V_1 I = -12(-3) \\ P &= 36 \text{ W absorbed} \end{aligned}$$