P1.21  (a) Elements \( C \) and \( D \) are in series.
(b) Because elements \( C \) and \( D \) are in series, the currents are equal in magnitude. However, because the reference directions are opposite, the algebraic signs of the current values are opposite. Thus, we have \( i_c = -i_d \).
(c) At the node joining elements \( A \), \( B \), and \( C \), we can write the KCL equation \( i_b = i_c + i_e = 3 + 1 = 4 \text{ A} \). Also, we found earlier that \( i_d = -i_e = -1 \text{ A} \).

P1.24  We are given \( i_e = -1 \text{ A} \), \( i_c = 3 \text{ A} \), \( i_d = 5 \text{ A} \), and \( i_b = 1 \text{ A} \). Applying KCL, we find

\[
\begin{align*}
  i_b &= i_c + i_e = 2 \text{ A} \\
  i_d &= i_c - i_e = 7 \text{ A}
\end{align*}
\]

\[
\begin{align*}
  i_e &= i_c + i_d = 4 \text{ A} \\
  i_d &= i_c + i_b = 6 \text{ A}
\end{align*}
\]

P1.25  (a) Elements \( A \) and \( B \) are in parallel.
(b) Because elements \( A \) and \( B \) are in parallel, the voltages are equal in magnitude. However, because the reference polarities are opposite, the algebraic signs of the voltage values are opposite. Thus, we have \( v_e = -v_b \).
(c) Writing a KVL equation while going clockwise around the loop composed of elements \( A \), \( C \) and \( D \), we obtain \( v_e - v_d - v_c = 0 \). Solving for \( v_c \) and substituting values, we find \( v_c = 7 \text{ V} \). Also, we have \( v_b = -v_e = -2 \text{ V} \).

P1.27  We are given \( v_e = 5 \text{ V} \), \( v_b = 7 \text{ V} \), \( v_d = -10 \text{ V} \), and \( v_a = 6 \text{ V} \). Applying KVL, we find

\[
\begin{align*}
  v_d &= v_e + v_b = 12 \text{ V} \\
  v_e &= -v_e - v_d + v_c = 8 \text{ V} \\
  v_b &= v_e + v_a = 7 \text{ V}
\end{align*}
\]

P1.43  (a) \( 10 = v_1 + v_2 \)
(b) \( v_1 = 15i \)
\( v_2 = 5i \)
(c) \( 10 = 15i + 5i \)
\( i = 0.5 \text{ A} \)
(d) \( P_{\text{source}} = -10i = -5 \text{ W} \). (Power delivered by the source.)
\( P_1 = 15i^2 = 3.75 \text{ W} \) (absorbed)
\( P_2 = 5i^2 = 1.25 \text{ W} \) (absorbed)