Assume $I_o = 1$ A and use linearity to determine $I_o$ in the given circuit when $I_s = 13$ A.

The current $I_o$ is equal to ___ A.
2. Use the superposition principle to determine the voltage across 10 Ω resistor due to 5-A current source and 30-V voltage source. Determine $i_o$ and $v_o$ in the given circuit where $I = 5 \, \text{A}$.

The voltage across 10 Ω resistor solely due to 5-A current source is ___________ V.

The voltage across the 10 Ω resistor solely due to 30-V voltage source is ___________ V.

The value of $v_o$ is ___________ V.

The value of $i_o$ is ___________ A.
3. value:
10.00 points

Consider the circuit given below where \( V_1 = 114 \text{ V} \).

Use superposition to obtain \( v_x \) in the given circuit.

The value of \( v_x \) in the given circuit is \( \underline{\text{value}} \) V.
Assume \( v_{x1} \), \( v_{x2} \), and \( v_{x3} \) are due to 114-V, 6-A and 40-V sources.
Use superposition to solve for $v_x$ in the given circuit where $I = 24$ A.

The value of $v_x$ in the given circuit is \[ V \]. Assume $v_1$ and $v_2$ are due to 4-A and 24-A sources.
Consider the given figure where $V_1 = 40\, \text{V}$ and $V_2 = 30\, \text{V}$. Use source transformations to reduce the circuit between terminals a and b to a single voltage source in series with a single resistor.

The equivalent resistor is ________ $\Omega$.

The equivalent voltage is ________ $\text{V}$. 

Use source transformation to find the voltage $V_x$ in the given circuit where $I = 9$ A.

The voltage $V_x$ in the given circuit is __________ V.
Apply source transformation to find $v_x$ in the given circuit where $V = 70$ V.

The value of $v_x$ in the given circuit is \_\_\_\_\_\_\_ V.
Use source transformation to find $v_o$ in the circuit in the following figure if $R = 5 \, k\Omega$.

The voltage $v_o$ is $\underline{\hspace{2cm}} \, V$. 
Use Thevenin’s theorem to find $v_o$ in the given circuit where $V = 8 \, \text{V}$.

The value of $v_o$ in the given circuit is [ ] mV.
For the circuit given below, find the Thevenin equivalent between terminals $a$ and $b$, where $V = 42$ V.

$R_{Th} = \underline{\phantom{0000}} \ \Omega$

$V_{Th} = \underline{\phantom{0000}} \ \text{V}$
Given the circuit in the following figure, obtain the Norton equivalent as viewed from the following terminals if \( R = 12 \, \Omega \).

**Terminals a-b**

\[
R_N = \quad \Omega \\
I_N = \quad A
\]
Consider the given circuit where $V = 85\, \text{V}$.

Determine the Norton equivalent circuit at terminals $a-b$ of the given circuit.

$R_N = \underline{\phantom{0000}} \, \Omega$

$I_N = \underline{\phantom{0000}} \, \text{A}$
Consider the given circuit where $V = 80\, \text{V}$.

Now let $R = 0\, \Omega$, $110\, \Omega$, and $\infty$. Calculate the power delivered to the $30\,-\,\Omega$ resistor in each case.

The power delivered to the $30\,-\,\Omega$ resistor when $R = 0\, \Omega$ is $\underline{\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad}\,\text{W}$.
The power delivered to the $30\,-\,\Omega$ resistor when $R = 110\, \Omega$ is $\underline{\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad}\,\text{W}$.
The power delivered to the $30\,-\,\Omega$ resistor when $R = \infty$ is $\underline{\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad}\,\text{W}$.