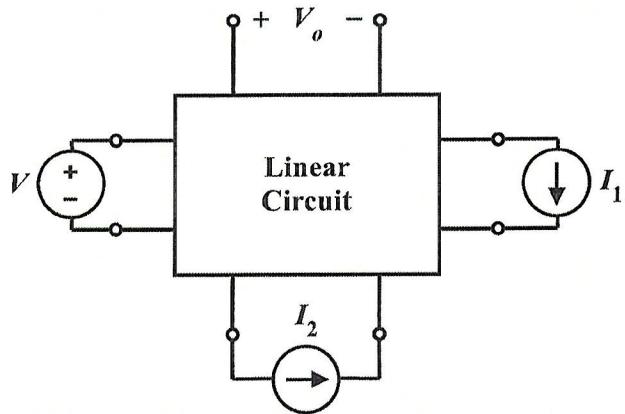$V_o = 20\,\text{V}$ when $V = 2\,\text{V}$, $I_1 = 0\,\text{A}$ and $I_2 = 2\,\text{A}$.

$V_o = 30\,\text{V}$ when $V = 5\,\text{V}$, $I_1 = 2\,\text{A}$ and $I_2 = 1\,\text{A}$.

$V_o = 50\,\text{V}$ when $V = 6\,\text{V}$, $I_1 = 3\,\text{A}$ and $I_2 = 5\,\text{A}$.

What will V_o be when $V = 5\,\text{V}$, $I_1 = 3\,\text{A}$ and $I_2 = 4\,\text{A}$?

Assume $V_o = aV + bI_1 + cI_2$

Then $a(2V) + b(0A) + c(2A) = 20V$

$a(5V) + b(2A) + c(1A) = 30V$

$a(6V) + b(3A) + c(5A) = 50$

In matrix form:

$$\begin{bmatrix} 2 & 0 & 2 \\ 5 & 2 & 1 \\ 6 & 3 & 5 \end{bmatrix} \begin{bmatrix} a \\ b \\ c \end{bmatrix} = \begin{bmatrix} 20 \\ 30 \\ 50 \end{bmatrix}$$

See the next page for the MATLAB solution:

new $V_o = 40\,\text{V}$

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>> A=[2 0 2; 5 2 1; 6 3 5]

A =

     2    0    2
     5    2    1
     6    3    5

>> c=[20 30 50]'

c =

    20
    30
    50

>> abc=A\c

abc =

    6.0000
   -2.0000
    4.0000

>> newVo=[5 3 4]*abc

newVo =

    40

>>
```