General Format for Solving Problems

Problem #: _____   Course: _____   Name: _____
_____
Given
Either write out the complete problem statement, including all sketches, graphs, circuits, etc., or summarize the given information by showing as much of the given information as possible on a sketch, such as dimensions, current, or voltage and listing any other significant information. Do not add any new or calculated information to this section.

_____
Find
List all information that is to be determined in the problem. If the problem is lengthy and has multiple parts, state what is to be found before each part.

_____
Solution

Show completely all steps necessary for the solution.

    Hints for clear solutions:
    1. Always include units.
    2. Maintain at least 3 significant digits in all calculations.
    3. Use SI prefixes with answers whenever possible.
    4. Underline or box the required answers.
    5. Express the formula being applied before substituting actual values into the formula.
       Poor example: Good example:
       24/7 = 3.4 $V = 24$ V
                                        $R = 7$ kΩ
 $I = V/R = 24/7$
                                        $I = 3.43$ mA
    6. Whenever possible, the variables in a solution should be shown on a corresponding figure. For example, if you are solving for a voltage V_1 and a current I_2 on a circuit, they should be labeled on the circuit (with voltage polarity and current direction indicated).
    7. Be neat!
    8. Use pencils rather than pens. Erase any mistakes.

Problem 3-8	EGR 271	John Doe

Given:
  Determine the voltages V_1 and V_2 in the circuit shown below.
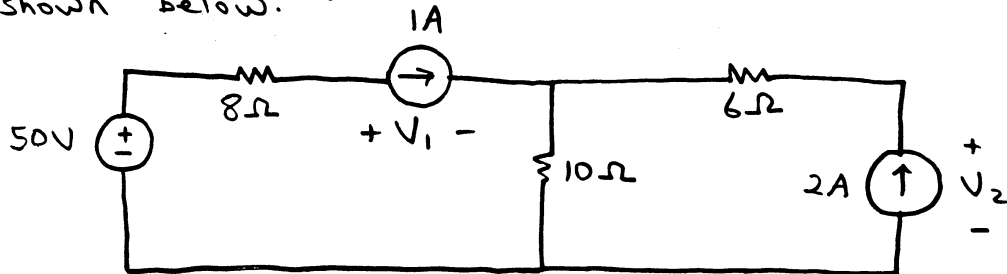
Solution:
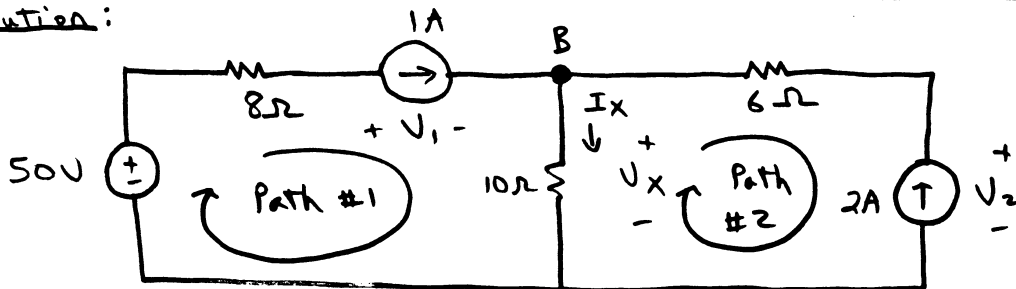
KCL, node B (out = +): $-1A - 2A + I_x = 0$, $I_x = 3A$

$$U_x = I_x R = (3A)(10\Omega)$$

$$U_x = 30V$$

KVL, path #1: $-50V + (8\Omega)(1A) + V_1 + 30V = 0$

$$\boxed{V_1 = 12\ V}$$

KVL, path #2: $-30V - (6\Omega)(2A) + V_2 = 0$

$$\boxed{V_2 = 42\ V}$$