PROBLEM # | | NAME | 1/x

GIVEN: PROBLEM STATEMENT

REQUIRED: WHAT IS REQUIRED

SOLUTION: YOUR SOLUTION

- BOX YOUR ANSWER
- DO NOT WRITE IN MARGINS
- LINES MUST BE STRAIGHT
- NO COPIES
- YOU CAN USE MATHCAD/MATLAB
- DO NOT WRITE ON BACK

PROBLEM 3.44 | DALE HARRELL | 1/

GIVEN: THE CIRCUIT IN FIGURE P3.77

REQUIRED: WRITE THE NODE EQUATIONS FOR THE CIRCUIT SHOWN

SOLUTION:

$\underline{V_1}$

$$0 = \frac{V_1 - V_4 - 3000 I_x}{5K\Omega} + I_x + \frac{V_1 - V_2}{4K\Omega}$$

$\underline{V_2}$

$$0 = \frac{V_2 - V_1}{4K\Omega} + \frac{V_2 - V_3}{2K\Omega} - 0.001 V_x$$

$\underline{V_3}$

$$0 = \frac{V_3 - V_2}{2K\Omega} + \frac{V_3 - 0}{2K\Omega} + 6mA$$

$\underline{V_4}$

$$0 = \frac{V_4 - V_1 + 3000 I_x}{5K\Omega} + \frac{V_4 - 0}{6K\Omega} - 6mA$$

$$I_x = \frac{V_1 - 0}{6K\Omega}$$

$$V_x = V_3$$