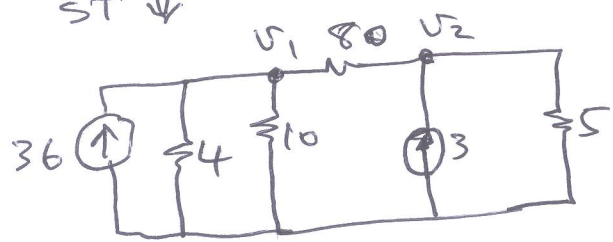
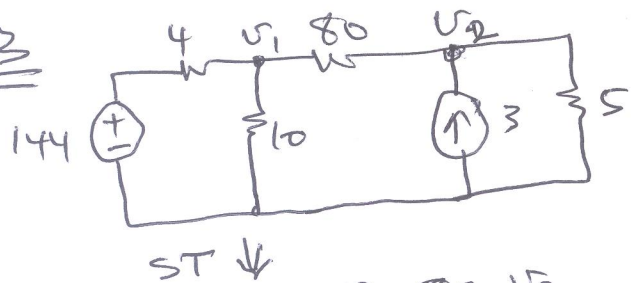


Pr 3



$$\frac{v_1}{4} + \frac{v_1}{10} + \frac{v_1 - v_2}{80} = 36 \Rightarrow \begin{cases} 20v_1 + 8v_1 + v_1 - v_2 = 36 \times 80 \\ 29v_1 - v_2 = 2880 \end{cases}$$

$$\frac{v_2}{5} + \frac{v_2 - v_1}{80} = 3 \Rightarrow \begin{cases} 16v_2 + v_2 - v_1 = 3 \times 80 \\ -v_1 + 17v_2 = 240 \end{cases}$$

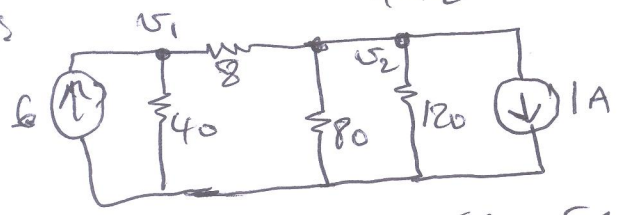
$$\begin{bmatrix} 29 & -1 \\ -1 & 17 \end{bmatrix} \begin{bmatrix} v_1 \\ v_2 \end{bmatrix} = \begin{bmatrix} 2880 \\ 240 \end{bmatrix} \quad \Delta = 492$$

$$v_1 = \frac{\begin{vmatrix} 2880 & -1 \\ 240 & 17 \end{vmatrix}}{492} = \frac{49200}{492} = 100V$$

$$v_2 = \frac{\begin{vmatrix} 29 & 2880 \\ -1 & 240 \end{vmatrix}}{492} = \frac{9840}{492} = 20V$$

$v_1 = 100V$
 $v_2 = 20V$

Pr 4



$$\frac{v_1}{40} + \frac{v_1 - v_2}{8} = 6 \Rightarrow \begin{cases} v_1 + 5v_1 - 5v_2 = 240 \\ 6v_1 - 5v_2 = 240 \end{cases}$$

$$\frac{v_2}{80} + \frac{v_2}{120} + \frac{v_2 - v_1}{8} + 1 = 0 \Rightarrow 35v_2 - 30v_1 = -240$$

$$\begin{bmatrix} 6 & -5 \\ -30 & 35 \end{bmatrix} \begin{bmatrix} v_1 \\ v_2 \end{bmatrix} = \begin{bmatrix} 240 \\ -240 \end{bmatrix} \quad \Delta = 60$$

$$v_1 = \frac{\begin{vmatrix} 240 & -5 \\ -240 & 35 \end{vmatrix}}{60} = 120V$$

$$v_2 = \frac{\begin{vmatrix} 6 & 240 \\ -30 & -240 \end{vmatrix}}{60} = 96V$$

$v_1 = 120V$
 $v_2 = 96V$