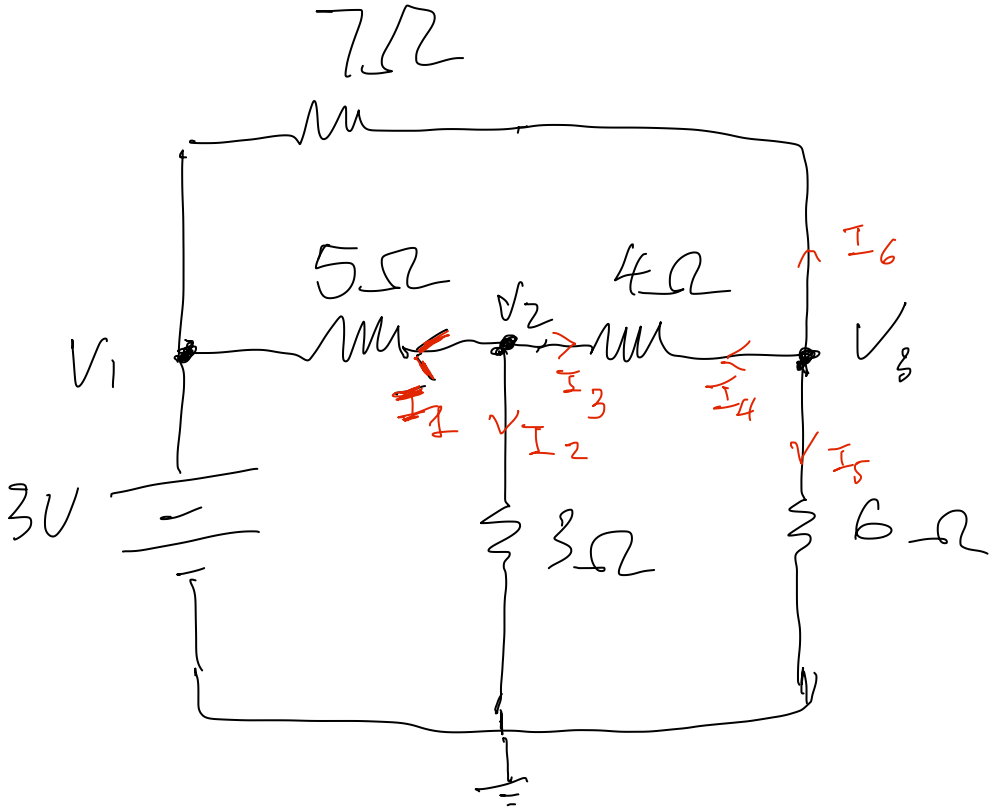
What Ho

1)



For V_2:

$$I_1 = \frac{V_2 - 3}{5\Omega} \; ; \; I_2 = \frac{V_2}{3\Omega} \; ; \; I_3 = \frac{V_2 - V_3}{4\Omega}$$

Because $I_1 + I_2 + I_3 = 0$

$$\Rightarrow \frac{V_2 - 3}{5\Omega} + \frac{V_2}{3\Omega} + \frac{V_2 - V_3}{4\Omega} = 0$$

$$\Rightarrow 12(V_2 - 3) + 20V_2 + 15(V_2 - V_3) = 0$$

$$\Leftrightarrow 12V_2 - 36 + 20V_2 + 15V_2 - 15V_3 = 0$$

$\Leftrightarrow$ $\boxed{47V_2 - 15V_3 = 36 \quad (1)}$

For V_3:

$$I_4 = \frac{V_3 - V_2}{4\Omega} \; ; \; I_5 = \frac{V_3}{6\Omega} \; ; \; I_6 = \frac{V_3 - 3}{7\Omega}$$

Also $I_4 + I_5 + I_6 = 0$

$$\Leftrightarrow \frac{V_3 - V_2}{4} + \frac{V_3}{6} + \frac{V_3 - 3}{7} = 0$$

$$\Leftrightarrow 42(V_3 - V_2) + 28V_3 + 24(V_3 - 3) = 0$$

$$\Leftrightarrow 42V_3 - 42V_2 + 28V_3 + 24V_3 - 72 = 0$$

$$\Leftrightarrow \boxed{94V_3 - 42V_2 = 72 \quad (2)}$$