Nodo A

$$i_1 + i_2 + i_3 = 0$$

$$\frac{12 - V_A}{1,8} + \frac{0 - V_A}{0,47} + \frac{V_B \, V_A}{2,2} = 0$$

$$\frac{12 - V_A}{1,8} - \frac{V_A}{0,47} + \frac{V_B - V_A}{2,2} = 0 \qquad ①$$

Nodo B $\quad i_3 + i_4 + i_5 = 0$

$$\frac{V_A - V_B}{2,2} - \frac{V_B}{3,9} + \frac{8 - V_B}{1,5} = 0 \qquad ②$$

De la ecuación ①

$$\frac{12,408 - 1,034 \, V_A - 3,96 \, V_A + 0,846 \, V_B - 0,846 \, V_B}{1,8612} = 0$$

$$-5,84 \, V_A + 0,846 \, V_B + 12,408 = 0$$

$$V_A = 0,145 \, V_B + 2,12 \qquad ③$$

③ en ②

$$\frac{2,12 - 0,855\,V_B}{2,2} - \frac{V_B}{3,9} + \frac{8 - V_B}{1,5} = 0$$

$$\frac{-5V_B + 12,402 - 3,3V_B + 68,64 - 8,58V_B}{12,87} = 0$$

$$-5V_B + 12,402 - 3,3V_B - 68,64 - 8,58V_B = 0$$

$$-16,88V_B = -81,04$$

$$V_B = 4,80\ V$$

Entonces.

$$V_A = 0,145(4,80) + 2,12$$

$$V_A = 2,81\ V$$