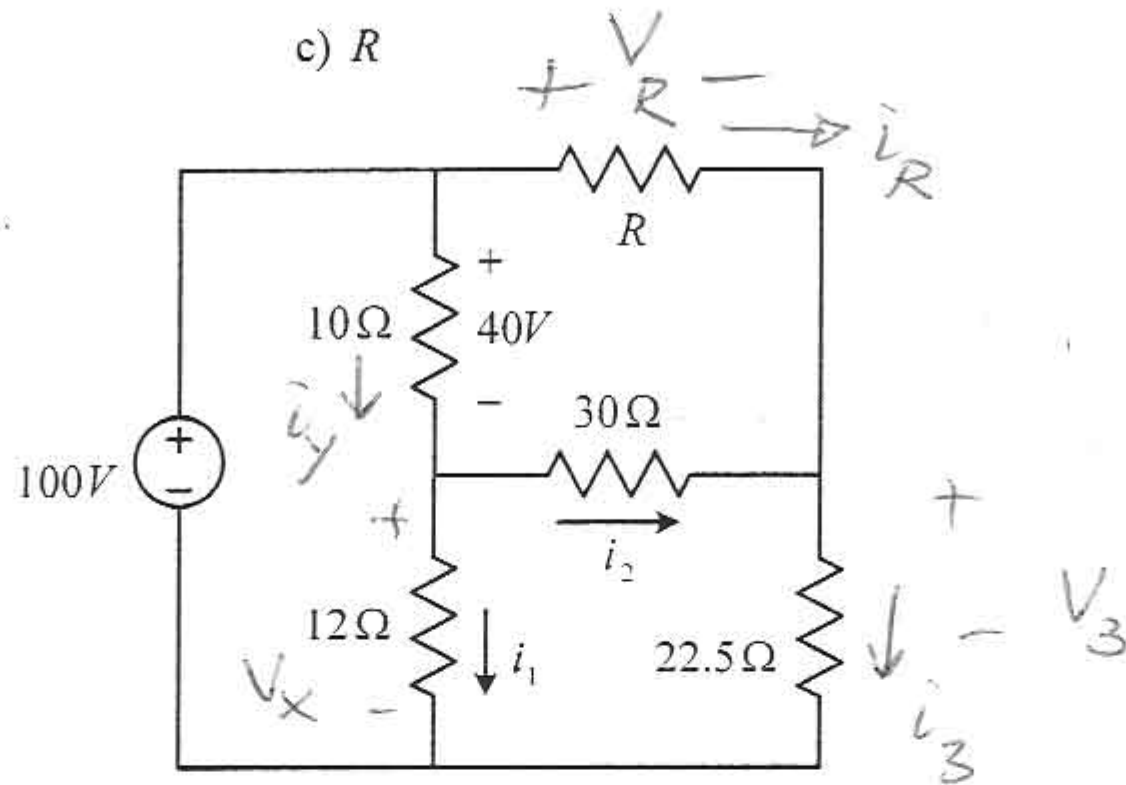


Name:

KEY

I.D. Number:

In the following circuit, the voltage across the 10Ω resistor equals $40V$. Calculate:a) i_1 b) i_2 c) R 

$$V_x = 100 - 40 = 60V$$

$$i_1 = \frac{V_x}{12} = 5A$$

$$i_y = \frac{40}{10} = 4A$$

$$i_2 = 4 - 5 = -1A$$

$$V_3 = -30i_2 + V_x = 30 + 60 = 90V$$

$$i_3 = \frac{90}{22.5} = 4A$$

$$i_{12} = i_3 - i_2 = 5A$$

$$V_R = 40 - 30 = 10V$$

$$\therefore R = \frac{10}{5} = 2\Omega$$