Problem #02
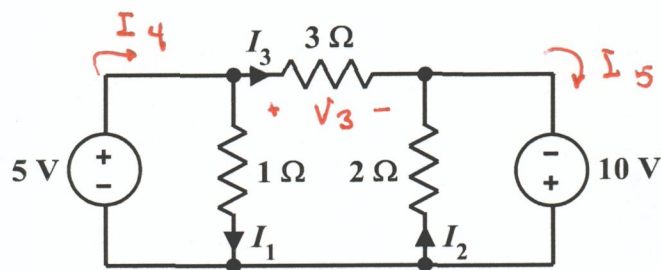

a. Determine the value of I_1.

$$I_1 = \frac{5V}{1\Omega} = 5 A$$

b. Determine the value of I_2.

$$I_2 = \frac{10V}{2\Omega} = 5 A$$

c. Determine the value of I_3.

$$V_3 = 5 + 10 = 15 V$$

$$\therefore I_3 = \frac{V_3}{3\Omega} = 5 A$$

d. How much power is delivered by the 5 V independent voltage source?

$$I_4 = I_1 + I_3 = 5 + 5 = 10 A$$

$$\therefore P = (5V) I_4 = 50 W$$

e. How much power is delivered by the 10 V independent voltage source?

$$I_5 = I_2 + I_3 = 5 + 5 = 10 A$$

$$\therefore P = (10V)(10A) = 100 W$$