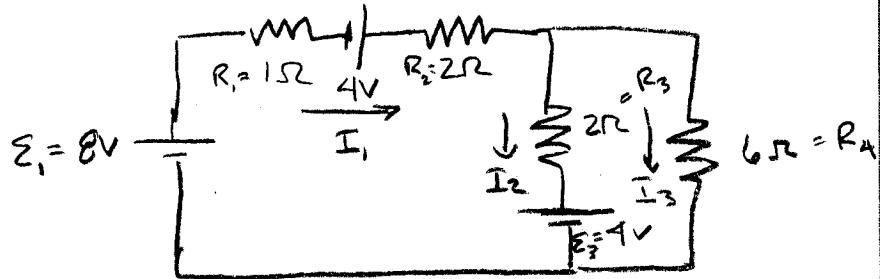


25-90

GIVEN :



FIND

$$I_1, I_2, I_3$$

PWR (EACH BATT, EACH SOURCE)

$$I_1 = I_2 + I_3$$

$$4V + I_2(2\Omega) - I_3(6\Omega) = 0$$

$$8V - I_1(1\Omega) + 4V - I_2(2\Omega) - I_3(6\Omega) = 0$$

$$12V - I_1(3\Omega) - I_3(6\Omega) = 0$$

$$I_1 = 2.0A$$

$$I_2 = 1.0A$$

$$I_3 = 1.0A$$

$$P_{E_1} = E_1 I_1 = (8V)(2A) = 16W$$

$$P_{E_2} = E_2 I_1 = (4V)(2A) = 8W$$

$$P_{E_3} = E_3 I_2 = (4V)(-1A) = -4W$$

20W  
SUPPLIED

$$P_{1\Omega} = I_1^2 R_1 = (2A)^2 (1\Omega) = 4W$$

$$P_{2\Omega} = I_1^2 R_2 = (2A)^2 (2\Omega) = 8W$$

$$P_{2\Omega} = I_2^2 R_3 = (1A)^2 (2\Omega) = 2W$$

$$P_{6\Omega} = I_3^2 R_4 = (1A)^2 (6\Omega) = 6W$$

20W  
DISSIPATED