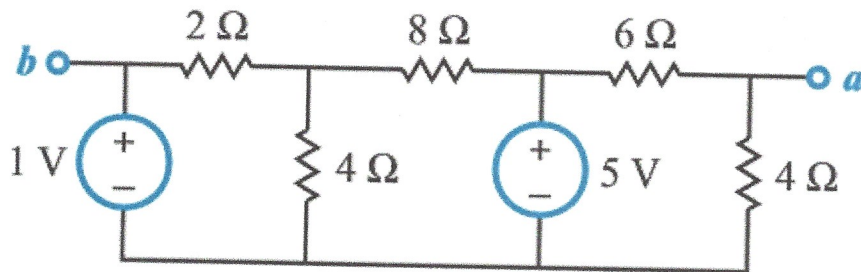


solution

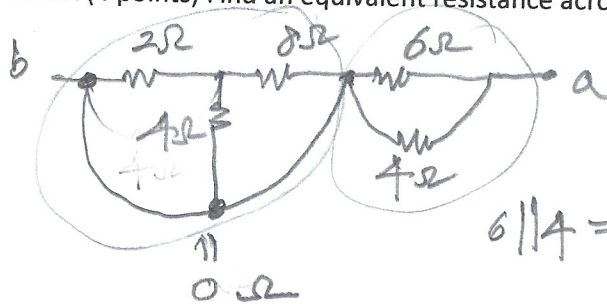
EE101 Quiz 4, February 5, 2019

Name _____ Student ID Number _____

This problem is to find a Thevenin's equivalent circuit for terminals b and a.



Part A (4 points) Find an equivalent resistance across terminals b and a.



$$R_{ab} = 2.4\Omega$$

$$6 \parallel 4 = \frac{6 \times 4}{6 + 4} = 2.4\Omega$$

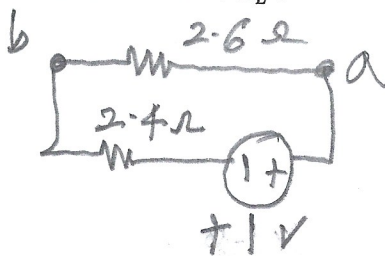
Part B (3 points) Find the open-circuit voltage across b and a as $V_{oc} = V_b - V_a$.

$$V_a = 5 \frac{4}{6+4} = 2[V]$$

$$V_b = 1[V]$$

$$V_{oc} = V_b - V_a = 1 - 2 = -1[V]$$

Part C (3 points) If you connect $R_L = 2.6\Omega$ to terminals b and a, how much power would be delivered to R_L ?



$$I_{R_L} = \frac{1}{2.6 + 2.4} = 0.2 A$$

$$P_{R_L} = (I_{R_L})^2 R_L = (0.2)^2 \times 2.6$$

$$= 0.04 \times 2.6$$

$$= 0.104 W = 104 [mW]$$