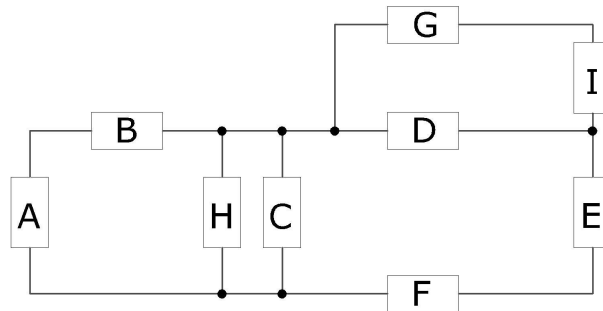


## EE40 Spring 2008 Homework 1

Due Friday 2/1 5 p.m. sharp. No extensions!

1. P 1.21 of Hambley.
- 2.



What is a node in an electrical circuit? Identify the nodes in the circuit in the figure above. Keep in mind that all points connected by ideal conductors are considered to be a single node in electrical circuits.

3. Consider Figure P 1.38 of Hambley. Find the values of the other currents if  $i_b = 2A$ ,  $i_e = -2A$ ,  $i_g = 4A$ ,  $i_h = -2A$ .

4. P 1.41 of Hambley.

5. Consider Figure P 1.43 of Hambley. Solve for the other voltages, given that  $v_a = 3V$ ,  $v_c = -3V$ ,  $v_d = 5V$ ,  $v_f = -1V$ .

6. A power of 200 W is delivered to a certain resistor when the applied voltage is 50 V. Find the resistance. Suppose the voltage is increased by 50% (to 75 V). Assuming the resistance remains constant, by what percentage is the delivered power increased?

7. The voltage across a 10 Ohm resistor is given by  $v(t) = 10 \sin(4\pi t)$  V. Determine the energy delivered to the resistor between  $t = 0$  and  $t = 10s$ .

8. P 1.65 of Hambley.

9. P 1.67 of Hambley.

10. P 1.71 of Hambley. Also, find the power delivered to each element and verify that the sum of the delivered powers is zero.