Quiz 1

Guidelines:

1) Open book, open notes, use any resources you like except your friends.

2) 25 minutes to solve the problems.

3) Show work clearly, grade depends on thought process and understanding not on answer.

4) Extra credit for extra hard problem.
Question 1

- Calculate:
  - the currents through R1, R2 and R3.
  - the voltages across R1, R2 and R3.
  - the current through the voltage source.
  - the power dissipation through each resistor.
  - The power supplied by the source.
Question 2

Calculate: \( V \), \( I_l \) and \( I_g \)

\[ R = 6 \text{kohm} \]

\[ V_1 = 10v \]

\[ R = 4 \text{kohm} \]

\[ V_2 = 5v \]

\[ V = 0v \]
Quiz 1

Question 3

- Last week the cable company in Cupertino hit the underground power line and caused a power outage for 10 hours. Assuming the following:
  - Power line voltage: (DC) 50 kilo volts to ground
  - Line resistance: 100 ohms
  - Short circuit caused by the short: 400 ohms to ground

- How much current flew through the line before the circuit breakers opened up?

- How much power did the generator have to supply?
Question 4.

My Laptop battery is rated to supply power for four hours under normal conditions. If my computer developed a minor short circuit which increased the current to twice the normal value, how much longer the battery will last?