1. (10 pts) Short questions:

   (a) (4 pts) What is the resistance of a toaster rated 1000W?

   (b) (3pts) The current ___________ voltage by _______ in a Capacitor.

   (c) (3 pts) ___________ cannot have sudden change through an inductor.
2. (10 pts) Construct the Thevenin generator that would represent this circuit.

2. (10 pts) Write down the equations to solve the voltage across the current source in the Fig.
3. (30 pts) A young MacGyver enthusiast is attempting to design a simple switched RC circuit to use as a fuse timer. The child has a 5 F capacitor and one AAA cell with an emf of 1.5 V and an internal resistance of 0.6 ohm. If the fuse will ignite when the capacitor is charged to a voltage of 1.0 V, how much time does the youngster have to vacate the premises?

With a never ending enthusiasm for adding batteries to a circuit, the youngster connects a fresh 9 V lithium battery as shown. Now how much time expires after switch closure until the fuse is ignited?
4. (40 pts)

a). Calculate the current through the capacitor and inductor.

b). If 10V and 5V batteries are replace by $V_1 = 10\cos(1000t)$ and $V_2 = 5\cos(1000t)$, respectively, calculate the current through the capacitor.