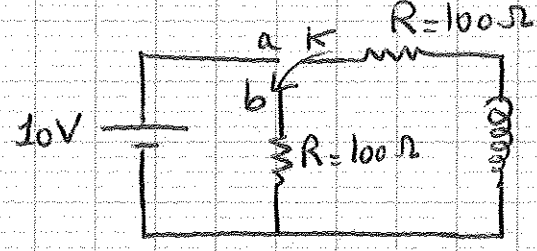
Electromagnetism and Waves II (phys 380)

Quiz IV.

I) The switch in figure below has been in position a for a long time. It is changed to position b at $t = 0$.

(a) What is the current in the circuit at $t = 5\mu s$.

(b) At what time has the current decayed to 1% of its initial value?



II) A metal rod is forced to move with constant velocity along two parallel metal rails. A magnetic field $B = 0.35$ T points out of page.

(a) Given: $L = 25$ cm, $v = 0.55$ m/s
What emf is generated?

(b) If rod has resistance $R = 18\ \Omega$, what is the current in the rod?

(c) At what rate is energy being transferred to thermal energy?