An electric circuit with an ohmic resistor and an inductance will exhibit a certain delay in approaching the (asymptotic) saturation current in response to a voltage source . Using Kirchoff’s circuit laws, electrical engineers have proposed the equation

for describing the time dependence of the electric current.

1. If the electric current is zero at time , determine the solution in terms of the given constants and .
2. Electrical engineers are often interested in the time when the electric current reaches 75% of its saturation value. Determine the value of in terms of the given constants.
3. Assuming a circuit with when is the electric current below the saturation level? You may ignore the units here (they are all SI).