Inductors

3. For the circuit below:
   (a) What is the value of $I_L$ at time $t_{0+}$?
   (b) What is the value of $V_{L1}$ at time $t_{0+}$?
   (c) What is the value of $I_{SRC}$ at time $t_{0+}$?
   (d) What is the value of $I_L$ at time $t = \infty$?
   (e) What is the value of $I_{R2}$ at time $t = \infty$?

![Circuit Diagram]

a. $I_L$ at $t_{0+}$ is zero as current cannot change instantaneously through the inductor.

b. $V_{L1}$ at $t_{0+}$ is 5V. Since no current flows through $L1$, $R1$ and $R2$ form a voltage divider.

c. $I_{SRC}$ at $t_{0+}$ is $\frac{10}{5+5}$ since no current is flowing through the inductor. (1 Amp)

d. At $t = \infty$, the inductor is a short circuit to DC, so $I_L = \frac{10}{5} = 2A$.

e. At $t = \infty$ $I_{R2}$ = 0A, since $L1$ is a short circuit across $R2$. 