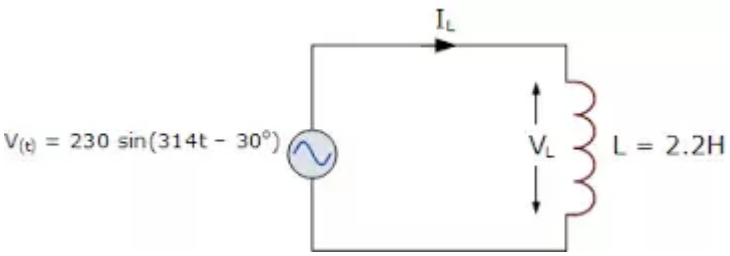
**Answer on Question #73360-Physics-Electromagnetism**

Can the end in a conductor be in the same sense as the emf of the source which gives the inductor its magnetic energy?

**Answer**

If any voltage source is connected across any inductor the voltage across the source and inductor will always be the same. Below $v(t) = V_L$.




If the source were DC the inductor would just melt due to the high current passing through it as $V_L$ = 0 in steady state. That is why one never connects and inductor across any DC source without resistance to limit the current in steady state. With AC this is not as problematic.