

Concept Q.: RLC Circuit w/ Light bulb

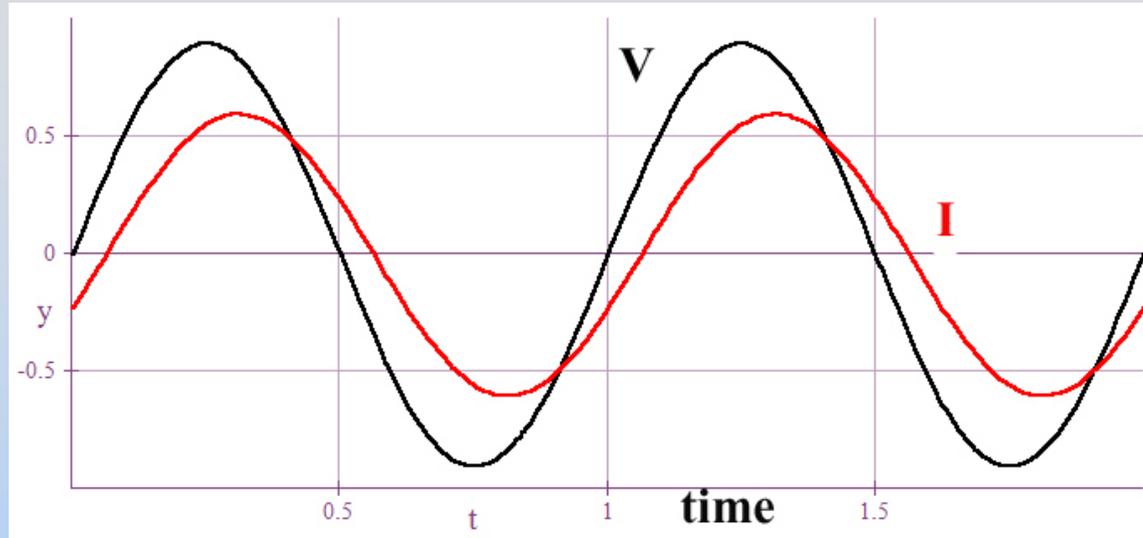
As I slide the core into the inductor the light bulb changes brightness. Why?

I am driving the circuit through resonance by...

1. continuously increasing the frequency of current oscillations in the circuit
2. continuously decreasing the frequency of current oscillations in the circuit
3. continuously increasing the natural frequency of oscillations in the circuit
4. continuously decreasing the natural frequency of oscillations in the circuit
5. I don't know

Concept Question: Leading or Lagging?

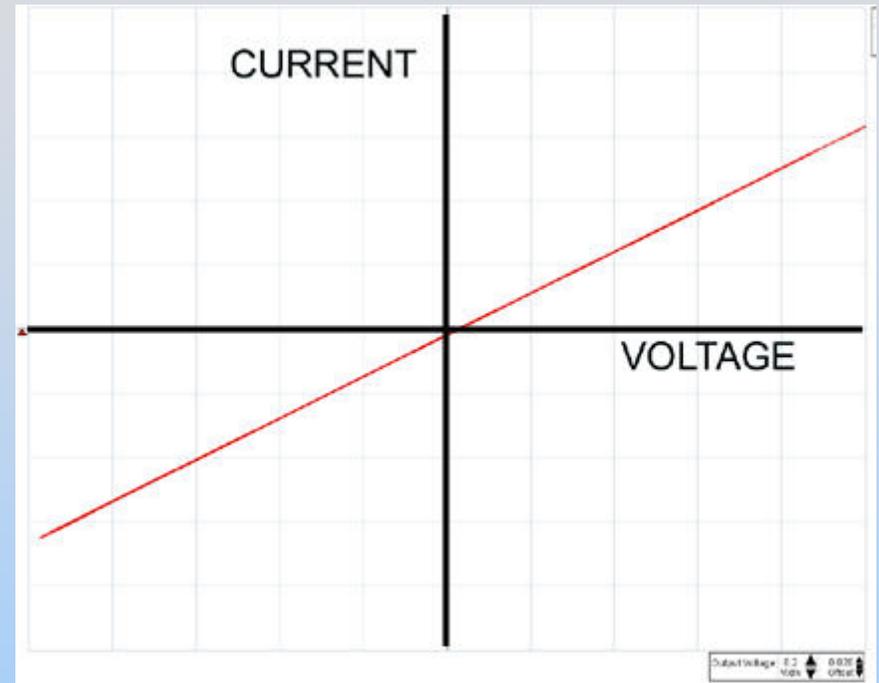
The plot shows the driving voltage V (black curve) and the current I (red curve) in a driven RLC circuit. In this circuit,



1. The current leads the voltage
2. The current lags the voltage
3. Don't have a clue.

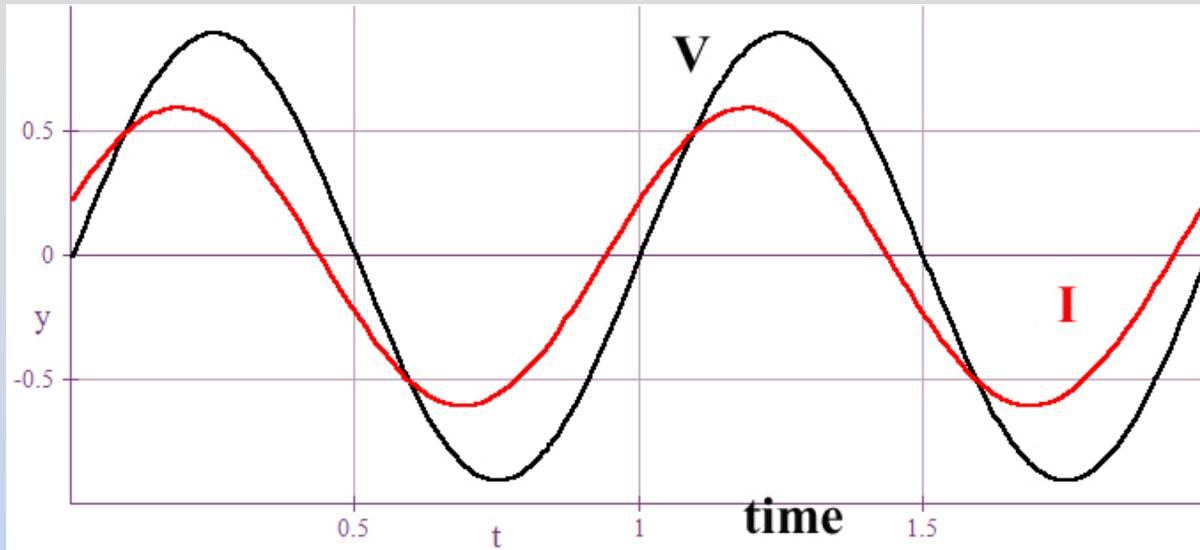
Concept Question: Leading or Lagging?

The graph shows current versus voltage in a driven RLC circuit at a given driving frequency. In this plot



1. The current leads the voltage by about 45°
2. The current lags the voltage by about 45°
3. The current and the voltage are in phase
4. Don't have a clue

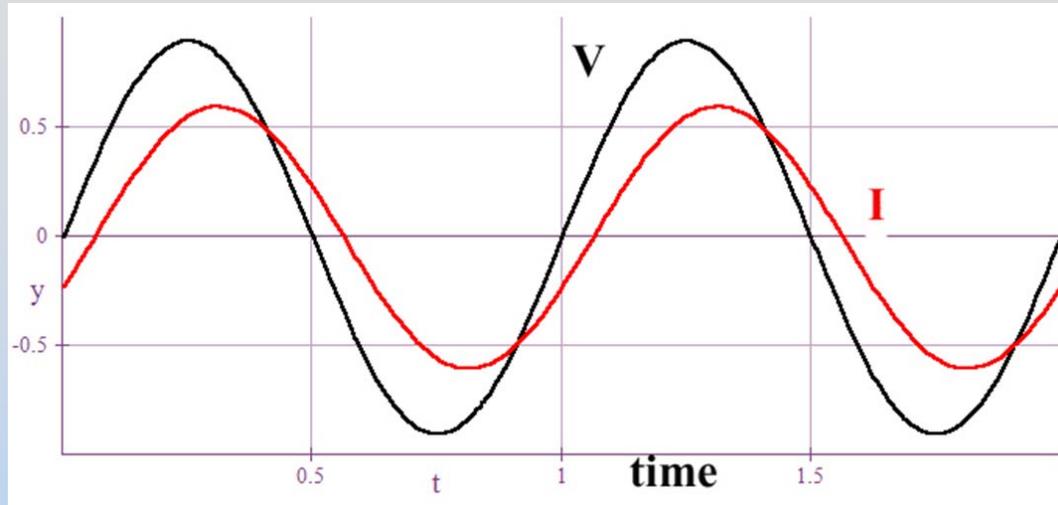
Concept Q.: Who Dominates?



The graph shows current & voltage vs. time in a driven RLC circuit at a particular driving frequency. At this frequency, the circuit is dominated by its

1. Inductance
2. Capacitance
3. I don't know

Concept Q.: What Frequency?



The graph shows current & voltage vs. time in a driven RLC circuit at a particular driving frequency. Is this frequency above or below the resonance frequency of the circuit?

1. Above the resonance frequency
2. Below the resonance frequency
3. I don't know

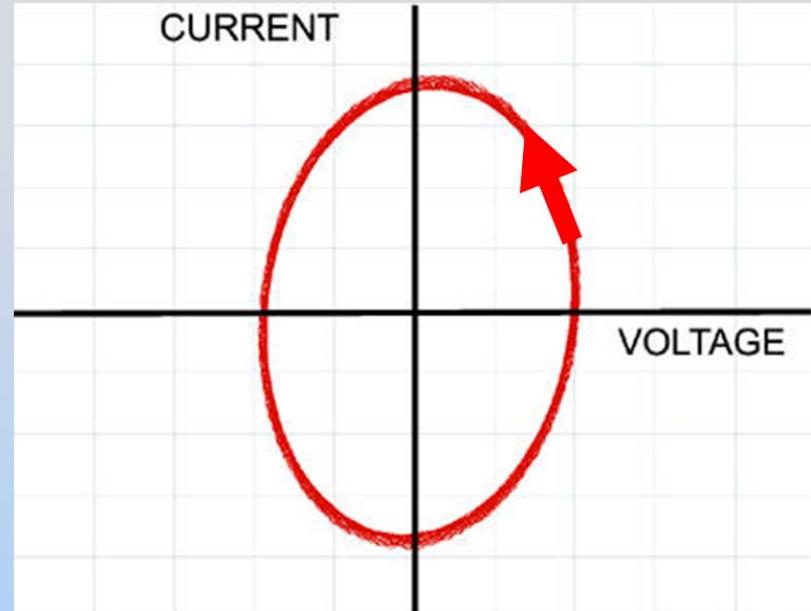
Concept Question: RLC Circuit With Light Bulb

Imagine another light bulb connected in parallel to this LRC circuit. With the core pulled out that light bulb would be flashing:

1. before the LRC light bulb (leading)
2. after the LRC light bulb (lagging)
3. in time with the LRC light bulb
4. not at all
5. I don't know

Concept Question: Leading or Lagging?

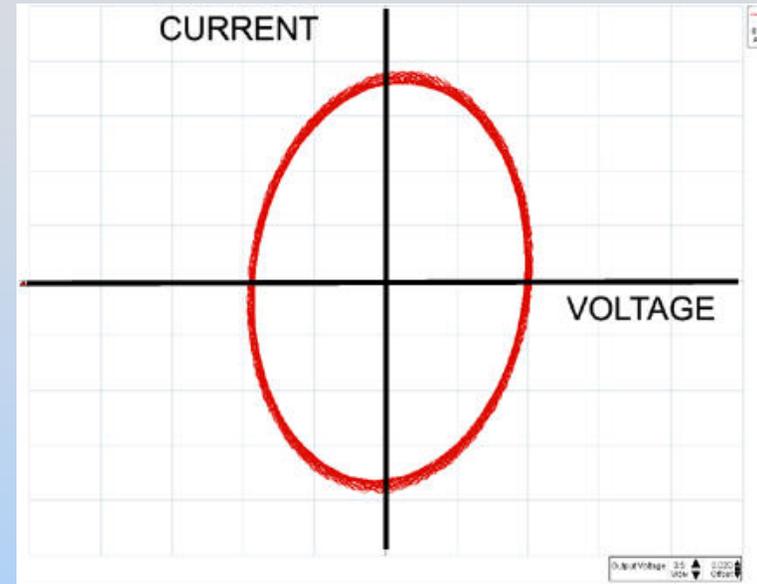
The graph shows current versus voltage in a driven RLC circuit at a given driving frequency. In this plot



1. Current lags voltage by $\sim 90^\circ$
2. Current leads voltage by $\sim 90^\circ$
3. Current and voltage are almost in phase
4. Not enough info (but they aren't in phase!)
5. I don't know.

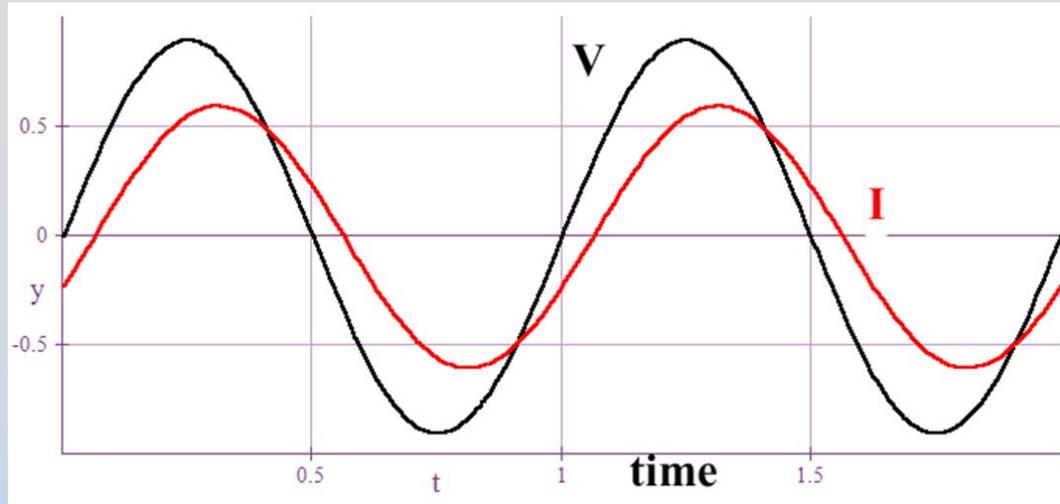
Concept Question: Leading or Lagging

The graph shows the current versus the voltage in a driven RLC circuit at a given driving frequency. In this plot



1. Current lags voltage by $\sim 90^\circ$
2. Current leads voltage by $\sim 90^\circ$
3. Current and voltage are almost in phase
4. We don't have enough information (but they aren't in phase!)
5. I don't know

Concept Question: What'd You Do?



The graph shows current & voltage vs. time in a driven RLC circuit. We had been in resonance a second ago but then either put in or took out the core from the inductor. Which was it?

1. Put in the core
2. Took out the core
3. I don't know

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