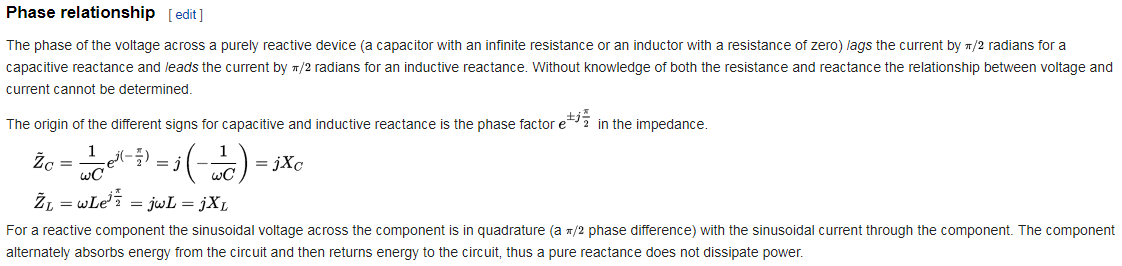
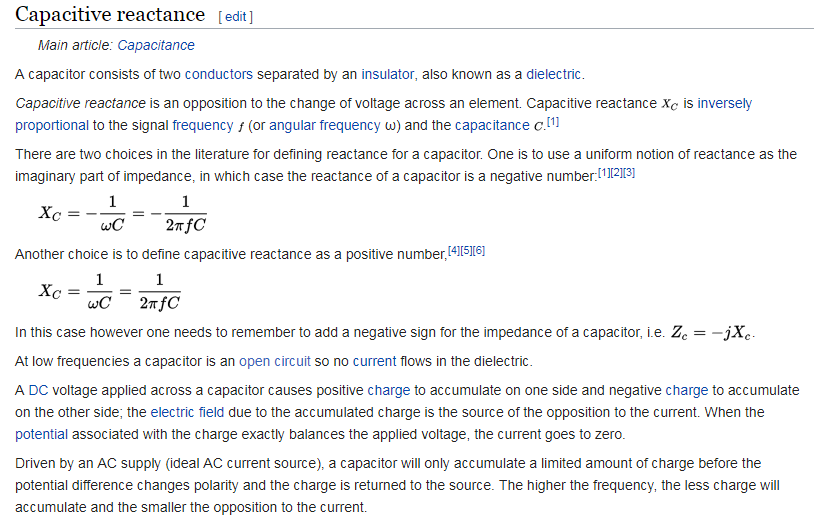
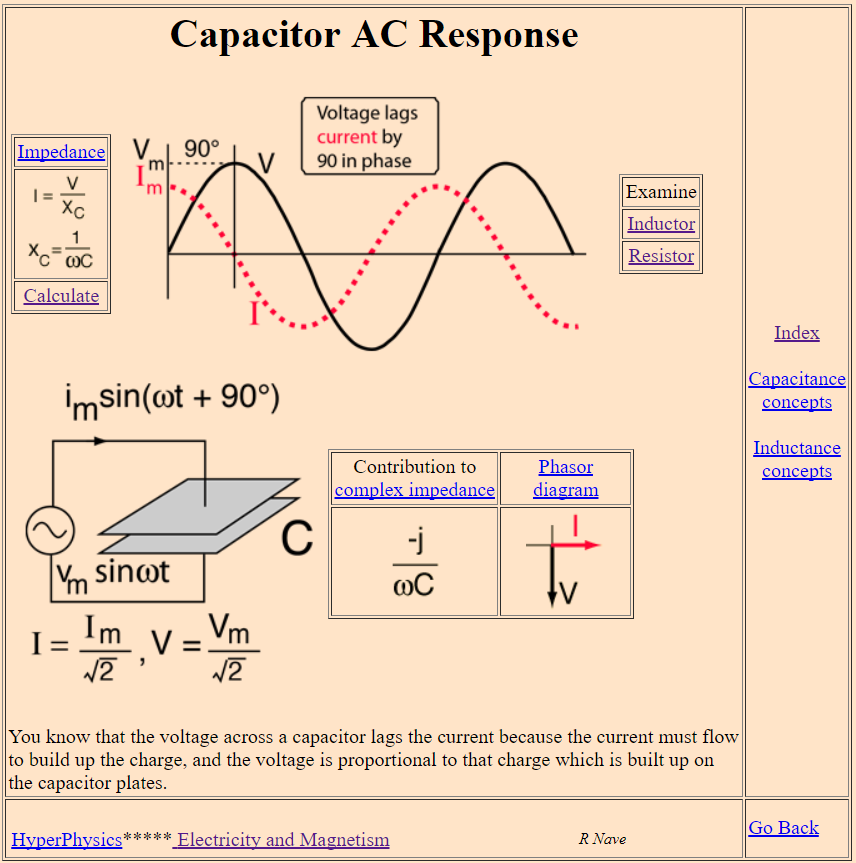
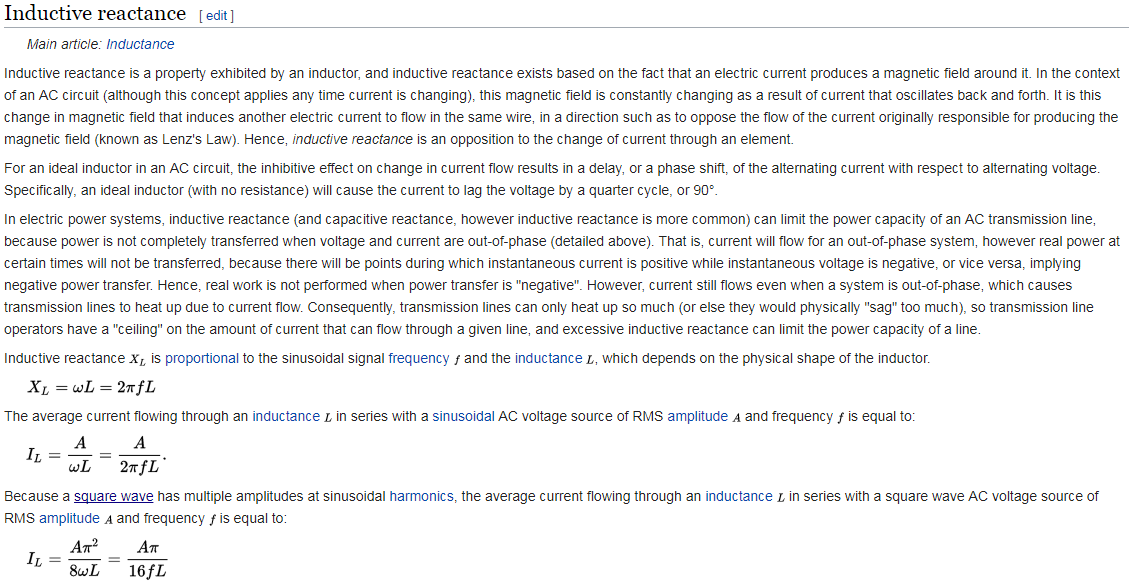
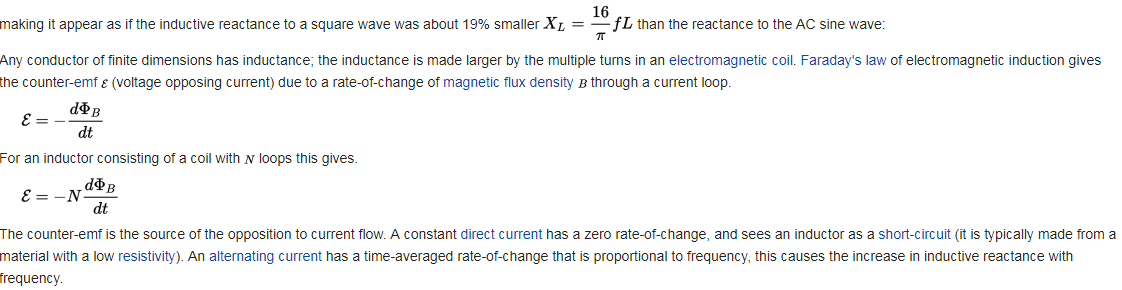
**reactance** is the opposition of a circuit element to a *change* in [current](https://en.wikipedia.org/wiki/Electric_current) or [voltage](https://en.wikipedia.org/wiki/Voltage), due to that element's [inductance](https://en.wikipedia.org/wiki/Inductance) or [capacitance](https://en.wikipedia.org/wiki/Capacitance).

In [phasor](https://en.wikipedia.org/wiki/Phasor) analysis, reactance is used to compute amplitude and phase changes of [sinusoidal](https://en.wikipedia.org/wiki/Sine_wave) [alternating current](https://en.wikipedia.org/wiki/Alternating_current) going through a circuit element. It is denoted by the symbol {\displaystyle \scriptstyle {X}}. An ideal [resistor](https://en.wikipedia.org/wiki/Resistor) has zero reactance, whereas ideal [inductors](https://en.wikipedia.org/wiki/Inductor) and [capacitors](https://en.wikipedia.org/wiki/Capacitor) have zero resistance – that is, respond to current only by reactance. The magnitude of the reactance of an inductor rises in proportion to a rise in frequency, while the magnitude of the reactance of a capacitor decreases in proportion to a rise in frequency. As frequency goes up, inductive reactance goes up and capacitive reactance goes down.



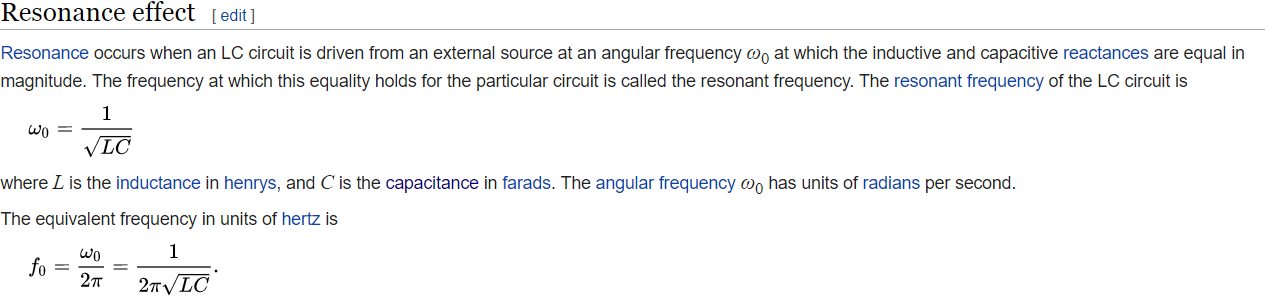


LC Circuits

An **LC circuit**, also called a **resonant circuit**, **tank circuit**, or **tuned circuit**, is an [electric circuit](https://en.wikipedia.org/wiki/Electric_circuit) consisting of an [inductor](https://en.wikipedia.org/wiki/Inductor), represented by the letter L, and a [capacitor](https://en.wikipedia.org/wiki/Capacitor), represented by the letter C, connected together. The circuit can act as an electrical [resonator](https://en.wikipedia.org/wiki/Resonator), an electrical analogue of a [tuning fork](https://en.wikipedia.org/wiki/Tuning_fork), storing energy oscillating at the circuit's [resonant frequency](https://en.wikipedia.org/wiki/Resonant_frequency).

LC circuits are used either for generating signals at a particular frequency, or picking out a signal at a particular frequency from a more complex signal; this function is called a [bandpass filter](https://en.wikipedia.org/wiki/Bandpass_filter). They are key components in many electronic devices, particularly radio equipment, used in circuits such as [oscillators](https://en.wikipedia.org/wiki/Electronic_oscillator), [filters](https://en.wikipedia.org/wiki/Electronic_filter), [tuners](https://en.wikipedia.org/wiki/Tuner_(electronics)) and [frequency mixers](https://en.wikipedia.org/wiki/Frequency_mixer).

An LC circuit is an idealized model since it assumes there is no dissipation of energy due to [resistance](https://en.wikipedia.org/wiki/Electrical_resistance). Any practical implementation of an LC circuit will always include loss resulting from small but non-zero resistance within the components and connecting wires. The purpose of an LC circuit is usually to oscillate with minimal [damping](https://en.wikipedia.org/wiki/Damping), so the resistance is made as low as possible. While no practical circuit is without losses, it is nonetheless instructive to study this ideal form of the circuit to gain understanding and physical intuition. For a circuit model incorporating resistance, see [RLC circuit](https://en.wikipedia.org/wiki/RLC_circuit).



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