## Answer on Question #74176- Physics-Other

1. Consider a purely capacitive circuit (a capacitor connected to an AC source).

(a) How does the capacitive reactance change if the driving frequency is doubled? halved?

## Answer

$$X_C = \frac{1}{2\pi fC} \sim \frac{1}{C}$$

If the driving frequency is doubled the capacitive reactance is halved.

If the driving frequency is halved the capacitive reactance is doubled.

(b) Are there any times when the capacitor is supplying power to the AC source?

## Answer

Yes. The half of all time the capacitor is supplying power to the AC source.

2. If the applied voltage leads the current in a series RLC circuit, is the frequency above or below resonance?

Answer: above the resonant frequency.

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