

# Calculation



Consider the harmonically driven series *LCR* circuit shown.

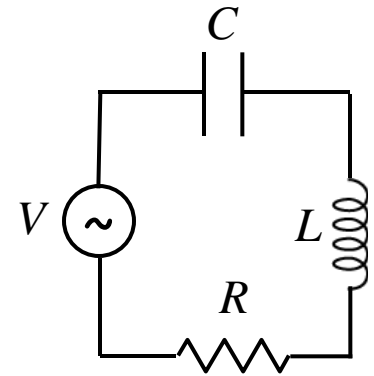
$$V_{max} = 100 \text{ V}$$

$$I_{max} = 2 \text{ mA}$$

$$V_{Cmax} = 113 \text{ V}$$

The current leads generator voltage by  $45^\circ$

*L* and *R* are unknown.



What is  $X_L$ , the reactance of the inductor, at this frequency?

Compare  $X_L$  and  $X_C$  at this frequency:

**A)  $X_L < X_C$**

B)  $X_L = X_C$

C)  $X_L > X_C$

D) Not enough information

This information is determined from the phase  
Current leads voltage

$$V_L = I_{max} X_L$$

$$V_C = I_{max} X_C$$

