$$V_o = 10 \text{ V},\ R = 10\ \Omega,\ L = 10^{-2} \text{ H}$$

L and R in series

$$V = V_o \cos \omega t$$

f (Hz)	100	10^3	10^4
ω (rad/s)	628	6.3×10^3	6.3×10^4
ωL (Ω)	6.3	63	628
I_{max} (A)	0.85	0.16	0.016
ϕ	32°	81°	89°

$$I_{max} = \frac{V_0}{\sqrt{R^2+(\omega L)^2}}$$

$I = I_{max} \cos(\omega t - \phi)$ — ωt and ϕ both in radians or both in degrees

$$\tan \phi = \frac{\omega L}{R}$$