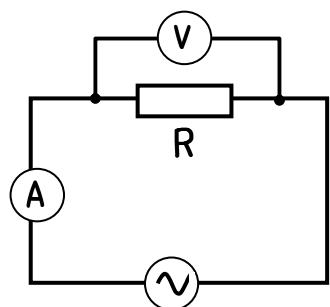
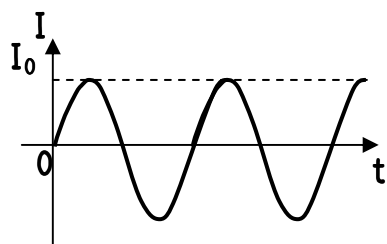
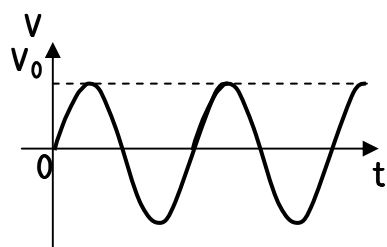


抵抗、コンデンサー、コイルの交流回路



$$V = V_0 \sin \omega t$$

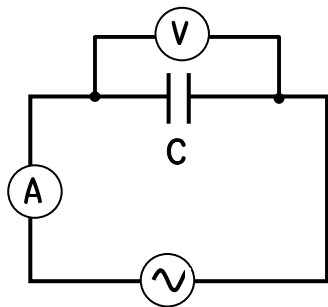


電流の位相はずれない

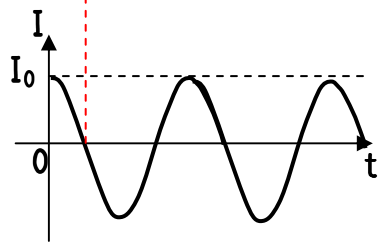
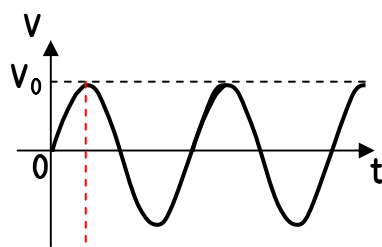
抵抗[Ω]

$$R$$

$$I = \frac{V_0}{R} \sin \omega t$$



$$V = V_0 \sin \omega t$$

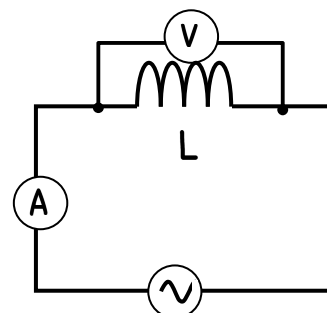


電流の位相電源電圧より
 $\frac{\pi}{2}$ 進む

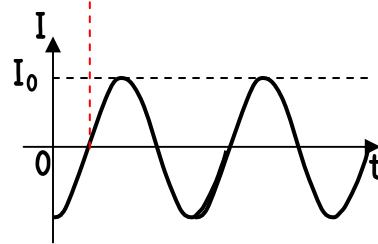
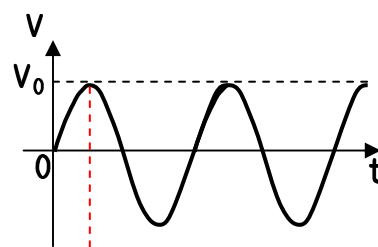
容量リアクタンス[Ω]

$$X_c = \frac{1}{\omega C} = \frac{1}{2\pi f C}$$

$$I = \omega C V_0 \sin(\omega t + \frac{\pi}{2})$$



$$V = V_0 \sin \omega t$$



電流の位相電源電圧より
 $\frac{\pi}{2}$ 遅れる

誘導リアクタンス[Ω]

$$X_L = \omega L = 2\pi f L$$

$$I = \frac{V_0}{\omega L} \sin(\omega t - \frac{\pi}{2})$$

消費電力

$$P = VI = \frac{V_0 I_0}{2} \cos \phi$$

$$\phi = 0$$

$$P_R = \frac{V_0 I_0}{2}$$

$$\phi = \frac{\pi}{2}$$

$$P = 0$$

$$\phi = -\frac{\pi}{2}$$

$$P = 0$$

理想的なコンデンサー、コイルでは電力を消費しない。