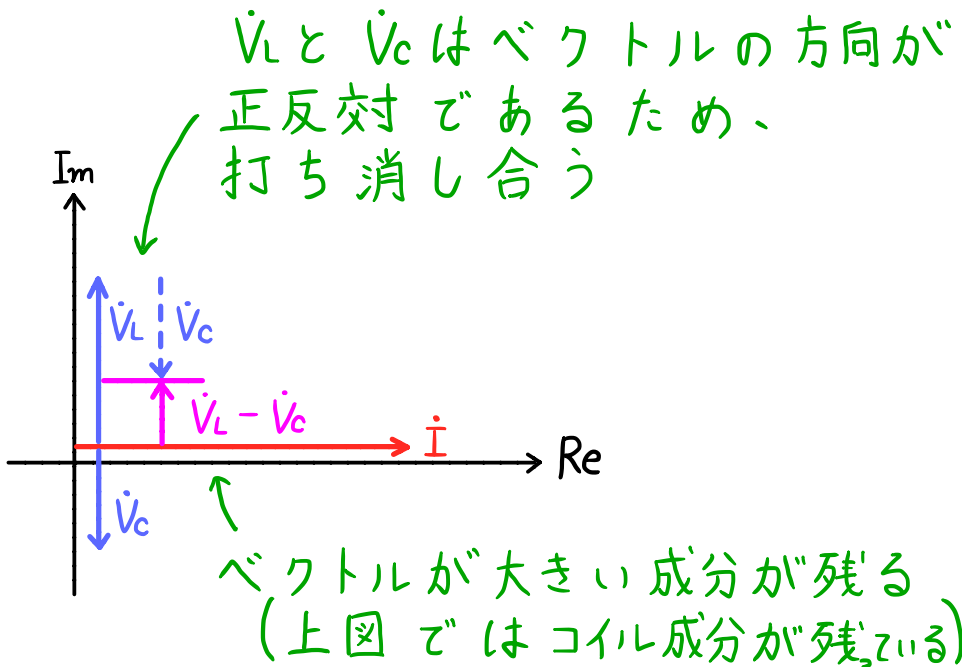
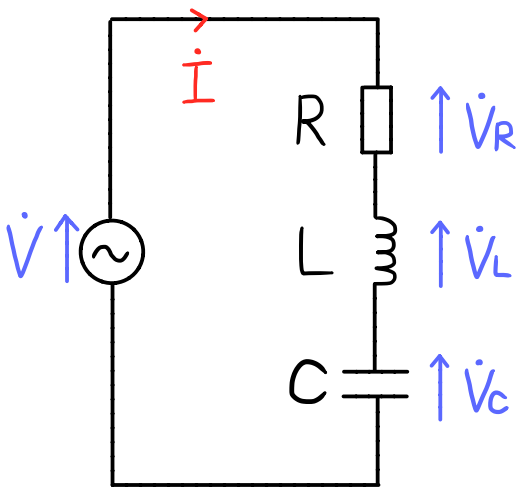


単相交流回路

RLC直列回路

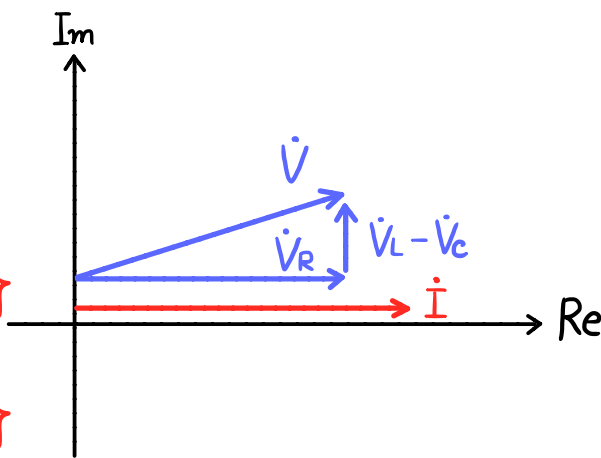


$$\dot{V} = \dot{V}_R + \dot{V}_L + \dot{V}_C$$

$$= \dot{I} \left\{ R + j(\omega L - \frac{1}{\omega C}) \right\}$$

$$\dot{Z}\dot{I} = \dot{I} \left\{ R + j(\omega L - \frac{1}{\omega C}) \right\}$$

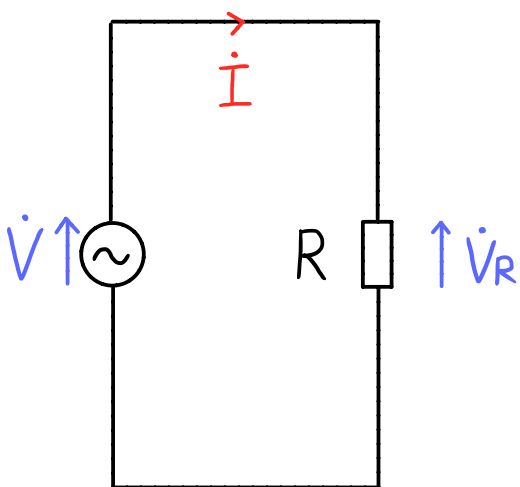
$$\therefore \dot{Z} = \underline{R + j(\omega L - \frac{1}{\omega C})} \text{ [}\Omega\text{]}$$



コイル成分とコンデンサ成分が同じときはどうなる？

→ 打ち消し合、て 0 となり、抵抗成分のみが残る

これを **共振** と呼ぶ



共振時は、この回路に等しい

$$\omega L = \frac{1}{\omega C} \quad \text{成分が等しいときに起こる}$$

$$\omega^2 = \frac{1}{LC}$$

$$\omega = \frac{1}{\sqrt{LC}}$$

$$2\pi f = \frac{1}{\sqrt{LC}}$$

$$\therefore \underline{f = \frac{1}{2\pi\sqrt{LC}}}$$

共振時の周波数を **共振周波数** と呼ぶ