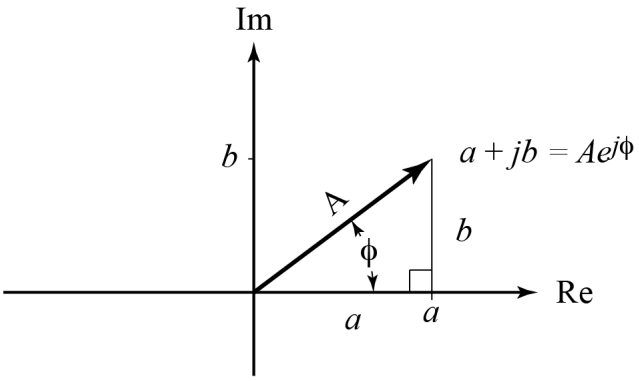
TOOL:

Sinusoid		Phasor
$P[A\cos(\omega t+\phi)]$	$\xrightarrow{P}$	$Ae^{j\phi}$
$P[A\sin(\omega t+\phi)]$	$\xrightarrow{P}$	$-jAe^{j\phi}$



Rect Form	Polar Form
$a + jb$	$Ae^{j\phi}$
$a = A\cos\phi$	$A = \sqrt{a^2 + b^2}$
$b = A\sin\phi$	$\phi = \tan^{-1}\left(\frac{b}{a}\right)$

$$\begin{array}{ccc} A\cos(\omega t + \phi) & \xrightarrow{P} & Ae^{j\phi} \\ \frac{d}{dt}\downarrow & & \downarrow \cdot j\omega \\ \omega A\cos(\omega t + \phi + 90^\circ) & \xrightarrow{P} & j\omega Ae^{j\phi} \end{array}$$

TOOL:

		Impedance	
$v = iR$	$\xrightarrow{P}$	$\mathbf{V} = \mathbf{I}R$	$z_R = R$
$v = L\frac{di_L}{dt}$	$\xrightarrow{P}$	$\mathbf{V} = j\omega L\mathbf{I}$	$z_L = j\omega L$
$i = C\frac{dv_C}{dt}$	$\xrightarrow{P}$	$\mathbf{I} = j\omega C\mathbf{V}$	$z_C = \frac{1}{j\omega C} = \frac{-j}{\omega C}$