**1.5.2** Given a phasor $V(\chi) = 10+j5$, find the sinusoidal signal this represents if the frequency equals 60 Hz.

$$\begin{aligned}
v(t) &= \text{Re}\left[V(\chi)e^{j\omega t}\right] \\
&= \text{Re}\left[(10+j5)e^{j(2\pi\cdot 60\text{Hz})}\right] \\
&= \text{Re}\left[(10+j5)(\cos 120\pi t + j\sin 120\pi t)\right] \\
&= \text{Re}\left[10\cos 120\pi t + j10\sin 120\pi t + j5\cos 120\pi t - 5\sin 120\pi t\right] \\
&= 10\cos 120\pi t - 5\sin 120\pi t
\end{aligned}$$