

ECE 320

$f := 60\text{Hz}$

$f = 60\text{s}^{-1}$

$V_m := 300\text{V}$

$V_{\text{rms}} := \frac{V_m}{\sqrt{2}}$

$t := 0\text{sec}, 0.0001\text{sec}.. 0.05\text{sec}$

$\theta := 0\text{deg} \quad \theta = 0$

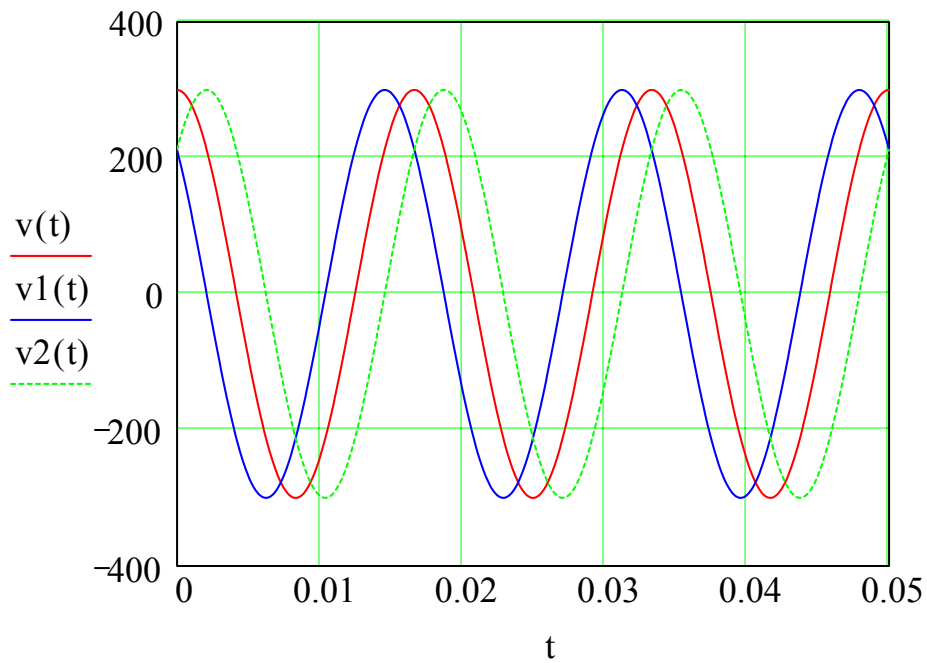
$\theta_1 := 45\text{deg} \quad \theta_1 = 45\text{deg}$

$\theta_2 := -45\text{deg}$

$v(t) := V_m \cdot \cos(2 \cdot \pi \cdot f \cdot t + \theta)$

$v_1(t) := V_m \cdot \cos(2 \cdot \pi \cdot f \cdot t + \theta_1)$

$v_2(t) := V_m \cdot \cos(2 \cdot \pi \cdot f \cdot t + \theta_2)$



$$R := 2\text{ohm}$$

$$L1 := 10\text{mH}$$

$$Z := R + j \cdot (2 \cdot \pi \cdot f \cdot L1) \quad Z = 2 + 3.77i \text{ kg m}^2 \text{ s}^{-3} \text{ A}^{-2}$$

$$V1 := V_{\text{rms}} \cdot e^{j \cdot \theta_1} \quad V1 = 150 + 150i \text{ kg m}^2 \text{ s}^{-3} \text{ A}^{-1}$$

$$|V1| = 212.132 \text{ kg m}^2 \text{ s}^{-3} \text{ A}^{-1}$$

$$\arg(V1) = 45 \text{ deg}$$

$$I := \frac{V1}{Z} \quad I = 47.522 - 14.577i \text{ A}$$

$$|I| = 49.708 \text{ A} \quad \arg(I) = -17.053 \text{ deg}$$

