

Review of Sinusoids

$$v(t) = A \cos[\omega t + \phi], \quad -\infty < t < \infty$$

A : Amplitude (Volts, Amps, etc.)

ω : Frequency (radians/sec)

ϕ : Phase (radians or degrees)

Recall angles in units of radians + degrees :



Full circle = $360^\circ = 2\pi$ radians

$$1 \text{ degree} = \frac{\pi}{180} \text{ radians}$$

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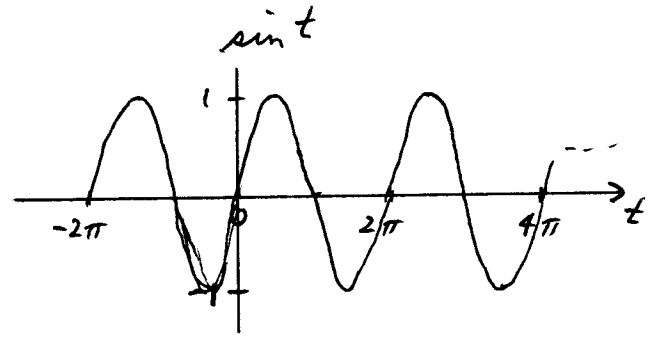
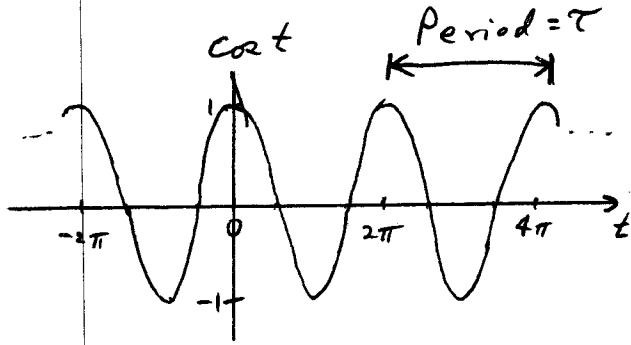
$$30^\circ \times \frac{\pi/180 \text{ rad}}{\text{degree}} = \frac{\pi}{6} \text{ rad}$$

$$\frac{\pi}{3} \text{ rad} \times \frac{180}{\pi} \frac{\text{deg}}{\text{rad}} = 60^\circ$$

Match each sinusoid with the corresponding sketch :

$\cos t$ $\sin t$ $\cos(2 \cdot t)$ $\cos\left(\frac{1}{2}t\right)$ $\cos(2\pi \cdot 10t)$	$2 \cos(2\pi/10t)$ $2 \cos\left(2\pi/10t + \frac{\pi}{4}\right)$ $2 \cos\left(2\pi/10t - \frac{\pi}{32}\right)$ $A \cos(\omega t + \phi)$
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②



$$f = \frac{1}{\tau} \text{ (Hz)} = \frac{1}{2\pi} \text{ Hz}$$
$$\omega = 2\pi f = 1 \text{ rad/sec}$$

