

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

1 radian = $\frac{180}{\pi}$ degrees

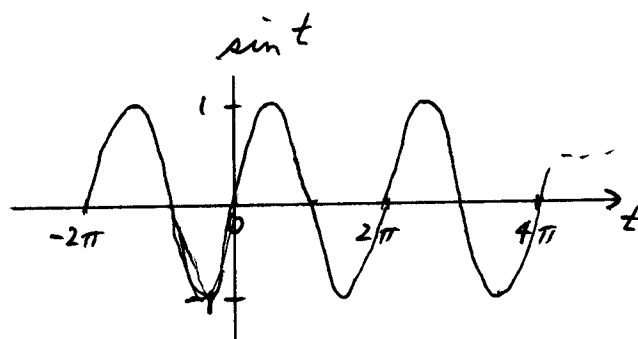
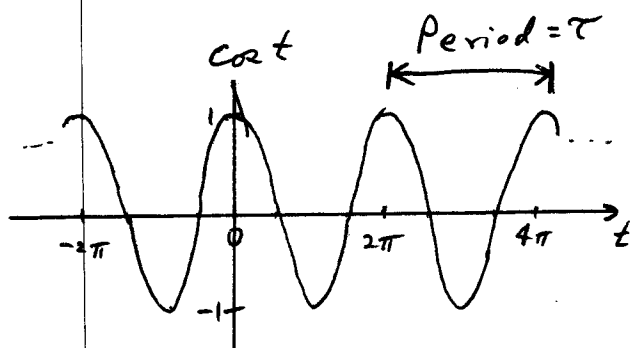
$$30^\circ \times \frac{\pi/180 \text{ rad}}{\text{degree}} = \frac{\pi}{6} \text{ rad}$$

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

Match each sinusoid with the corresponding sketch:

$\cos t$	$2 \cos(2\pi/10 t)$
$\sin t$	$2 \cos(2\pi/10 t + \frac{\pi}{4})$
$\cos(2 \cdot t)$	$2 \cos(2\pi/10 t - \pi/3)$
$\cos(\frac{1}{2} t)$	$A \cos(\omega t + \phi)$
$\cos(2\pi \cdot 10 t)$	

(2)



$$f = \frac{1}{\tau} \text{ (Hz)} = \frac{1}{2\pi} \text{ Hz}$$

$$\omega = 2\pi f = 1 \text{ rad/sec}$$

