Review

Amplitude $= |A|$

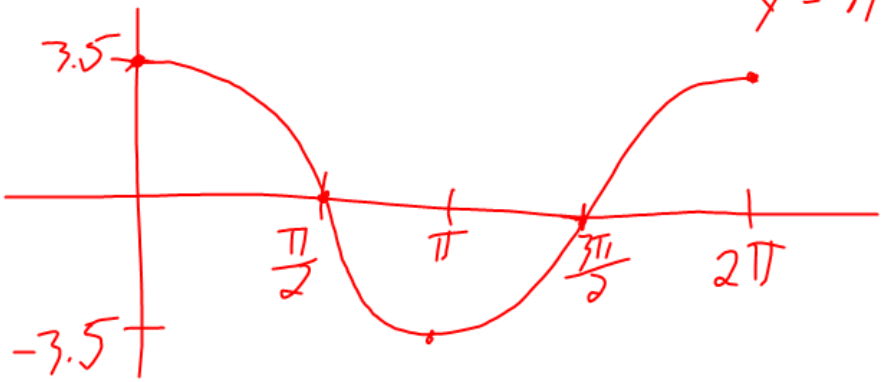
Period $= \frac{2\pi}{K}$

① $y = 3.5\cos\theta$

Ampl $= 3.5$ Period $= 2\pi$

$y = A\sin K\theta$

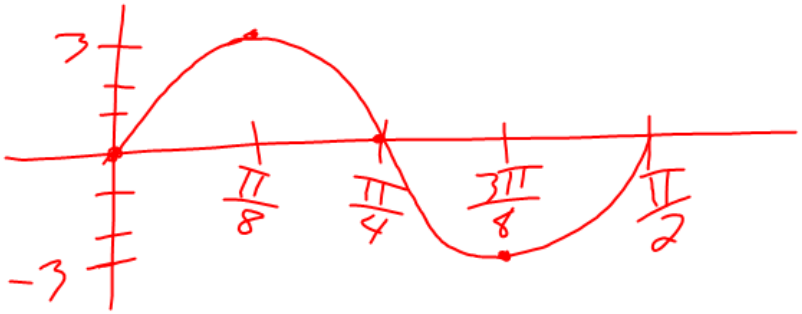
$y = A\cos K\theta$



② $y = 3\sin 4\theta$

Ampl $= 3$

Period $= \frac{2\pi}{4} = \frac{\pi}{2}$



Example 4 Write an equation of the cosine function with amplitude 9.8 and period 6π.

$y = A\cos K\theta$

$y = \pm 9.8\cos \frac{1}{3}\theta$

or

$y = \pm 9.8\cos \frac{\theta}{3}$

Period $= \frac{2\pi}{K}$

$6\pi = \frac{2\pi}{K}$

$6\pi K = 2\pi$

$K = \frac{2\pi}{6\pi}$

$K = \frac{1}{3}$

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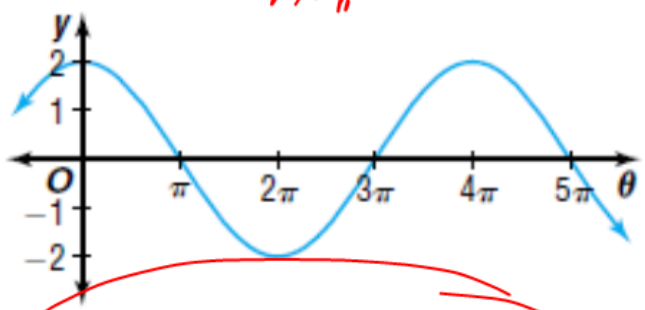

Ampl = 2

Period = 4π

$4\pi = \frac{2\pi}{K}$

$K = \frac{2\pi}{4\pi}$

$K = \frac{1}{2}$

$y = 2\cos \frac{\theta}{2}$

ex.5 high → low = 3.5 ft

high → low → high pts. → 14 sec. = Period

a. equilibrium at $t=0$, on way down

A is neg.

$\text{Ampl} = \frac{3.5}{2} = 1.75$

sine

Per = 14 sec.

$14 = \frac{2\pi}{K}$

$K = \frac{2\pi}{14}$

$K = \frac{\pi}{7}$

$y = A \sin K\theta$

$y = -1.75 \sin \frac{\pi}{7} t$

b. at 8 sec

$y = -1.75 \sin\left(\frac{\pi}{7}(8)\right)$

$y = .8 \text{ ft}$

at 17 sec

$y = -1.75 \sin\left(\frac{\pi}{7}(17)\right)$

$y = -1.7 \text{ ft}$

6 **MUSIC** **Write an equation of the sine function that represents the initial behavior of the vibrations of the note G above middle C having amplitude 0.015 and a frequency of 392 hertz.**

$y = A \sin k\theta$

$y = \pm .015 \sin 784\pi t$

Freq = 392

$\text{Per} = \frac{1}{392}$

$\frac{1}{392} = \frac{2\pi}{k}$

$\frac{1}{392} k = 2\pi$

$k = 2\pi(392)$

$k = 784\pi$

p. 373-377

17-18, 21-22, 24-25, 27, 33-34, 36-37, 41-43, 47, 49-54, 56-57, 59, 73