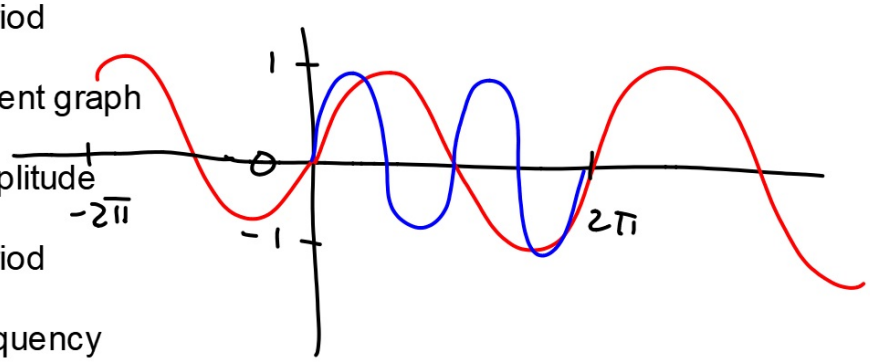
Trig 6.4

Find the amplitude and period for sine and cosine functions
Write equations of sine and cosine functions given the amplitude and period

parent graph



amplitude

period

frequency

hertz

Quiz 6.3-6.4 tomorrow

reminder 2π/k = period

Write an equation of the sine function with each amplitude and period.

12. amplitude = 0.8, period = π **13.** amplitude = 7, period = $\frac{\pi}{3}$

$y = 0.8 \sin(2x)$

$\frac{2\pi}{n} = \frac{\pi}{1}$

$\frac{\pi \cdot n}{\pi} = \frac{2\pi}{\pi}$

$y = 7 \sin(6\theta)$

$\frac{2\pi}{n} = \frac{\pi}{3}$

$\frac{6\pi}{\pi} = \frac{\pi n}{\pi}$

Write an equation of the cosine function with each amplitude and period.

14. amplitude $= 1.5$, period $= 5\pi$

15. amplitude $= \frac{3}{4}$, period $= 6$

$\frac{1}{3}$ hr. I can wash 3 cars per hour.
How long does it take to wash 1 car?

$\frac{60}{3} = 20$ min

$\frac{1}{4}$ hr I can walk 4 miles per hour.
How long does it take to walk one mile?

$\frac{60}{4} = 15$ min

$$\frac{3 \text{ cars}}{\frac{1}{3} \text{ hr}} \Big| \frac{4 \text{ mi}}{\frac{1}{4} \text{ hr}}$$

frequency: "How many in a unit of time?"
period: "How long does it take for one?"

P= Length for one cycle period

F=number of cycles per time

$$\text{period} = \frac{1}{\text{frequency}} \qquad \text{frequency} = \frac{1}{\text{period}}$$

Hz (freq) =

1 hertz = 1 cycle per second

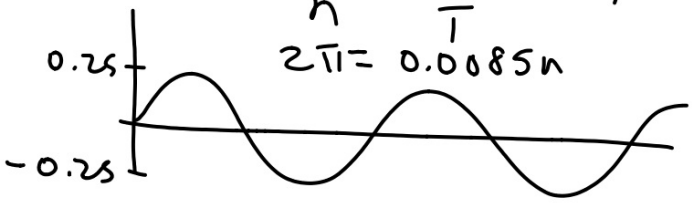
(radians)

16. Music Write a sine equation that represents the initial behavior of the vibrations of the note D above middle C having an amplitude of 0.25 and a frequency of 294 hertz.

$\frac{294}{1} = \frac{1}{x}$

$\frac{2\pi}{n} = \frac{0.0085}{1}$

$2\pi = 0.0085n$



$294x = 1$

$\frac{294}{294} \quad \frac{1}{294}$

$x = 0.0085$ sec.

$y = 0.25 \sin(739.2\theta)$

$y = (0.19)\sin(1611\ x)$

WB 6.4