Algebra 2 w/ Trig

10.1 Graph Sine and Cosine Functions

Warm-Up:

**Find the sine, cosine, and tangent.**

1. $\frac{π}{2}$ 2. $2π$
2. The diameter of a wheel is 27 inches. Through how many radians does a point on the wheel move when the wheel moves 15 feet?

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**Example 1: Graph Sine and Cosine Functions**

**Graph (a)** $y = 4 sin x$ **(b)** $y = cos 4x$

Amplitude: Amplitude:

Period: Period:

Intercepts: Intercepts:

Maximum: Maximum:

Minimum: Minimum:

 

**YOU TRY: Graph the function.**

**1.** $y = 2 cos x$ **2.** $y = 5 sin x$

Amplitude: Amplitude:

Period: Period:

Intercepts: Intercepts:

Maximum: Maximum:

Minimum: Minimum:

 

**3.** $f (x) = sin πx$ **4.** $g(x) = cos 4πx$

Amplitude: Amplitude:

Period: Period:

Intercepts: Intercepts:

Maximum: Maximum:

Minimum: Minimum:

 

**Example 2: Graph a Cosine Function**

Graph $y=\frac{1}{2}cos2πx$

Amplitude:

Period:

Intercepts:

Maximum:

Minimum:

**Example 3: Model with a Sine Function**

****A sound consisting of a single frequency is called a pure tone. An *audiometer* produces pure tones to test a person’s auditory functions. Suppose an audiometer produces a pure tone with a frequency *f* of 2000 hertz (cycles per second). The maximum pressure *P* produced from the pure tone is 2 millipascals. Write and graph a sine model that gives the pressure *P* as a function of the time *t* (in seconds).

Amplitude:

Period:

Intercepts:

Maximum:

Minimum:

**YOU TRY: Graph the function.**

$5. y=\frac{1}{4}sinπx$ 6. $y=\frac{1}{3}cosπx$

Amplitude: Amplitude:

Period: Period:

Intercepts: Intercepts:

Maximum: Maximum:

Minimum: Minimum:

 

7. $f (x) = 2 sin 3x$ 8. $g(x) = 3 cos 4x$

Amplitude: Amplitude:

Period: Period:

Intercepts: Intercepts:

Maximum: Maximum:

Minimum: Minimum:

 

9. What If ? In Example 3, how would the function change if the audiometer produced a pure tone with a frequency of 1000 hertz?

Hw: Section 10.1 p. 616 #3-23 odds