Graphing Sine and Cosine Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Let y = sin x where x = angle in RADIANS. Fill in the table of values and plot on the coordinate plane below.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| x | -2π | -3π/2 | -π | -π/2 | 0 | π/2 | π | 3π/2 | 2π |
| y=sin x |  |  |  |  |  |  |  |  |  |

Connect these points in a SMOOTH curve. Do NOT make it pointy.

This is the shape of the **y = sinx** curve.



A periodic function is a function whose values repeat after a certain interval. The PERIOD refers to the length on the x axis that repeats itself.

Is **y = sin x** a PERIODIC function? If so, what is the period?

The AMPLITUDE of a function is found by ½(max – min). What is the AMPLITUDE of y = sin x?

On your calculator, change the MODE to Radians (not degrees). Under Y= put in sin x. Go to ZOOM and choose #7 (ZTrig). Note that the x-axis is from [-2π, 2π].

This should have given you the graph you did above. Make sure it is correct and fix it if not.

**Graph y =3sinx**. Describe how this is different from y = sin x. What is the amplitude? Period?

**Graph y =-4 sin x**. Describe how this is different from y = sin x. What is the amplitude? Period?

**Graph y = sin 2x**. Describe how this is different from y = sin x. What is the amplitude? Period?

**Graph y = sin ½ x**. Describe how this is different from y = sin x. What is the amplitude? Period?

**Let’s generalize . . . if y = A sin Bx,**

**The AMPLITUDE is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The PERIOD is \_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Let y = cos x where x = angle in RADIANS. Fill in the table of values and plot on the coordinate plane below.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| x | -2π | -3π/2 | -π | -π/2 | 0 | π/2 | π | 3π/2 | 2π |
| y=cos x |  |  |  |  |  |  |  |  |  |

Connect these points in a SMOOTH curve. Do NOT make it pointy. This is the shape of the y = cos x curve.



A periodic function is a function whose values repeat after a certain interval. The PERIOD refers to the length on the x axis that repeats itself.

Is **y = cos x** a PERIODIC function? If so, what is the period?

The AMPLITUDE of a function is found by ½(max – min). What is the AMPLITUDE of y = cos x?

On your calculator, make sure your MODE is set to Radians (not degrees). Under Y= put in **cos x**. Go to ZOOM and choose #7 (ZTrig). This should have given you the graph you did above. Make sure it is correct and fix it if not. Note that the x-axis is from [-2π, 2π].

**Graph y =4 cos x**. Describe how this is different from y = sin x. What is the amplitude? Period?

**Graph y =-3 cos x**. Describe how this is different from y = sin x. What is the amplitude? Period?

**Graph y = cos 4x**. Describe how this is different from y = sin x. What is the amplitude? Period?

**Graph y = cos ½ x**. Describe how this is different from y = sin x. What is the amplitude? Period?

**Let’s generalize . . . if y = A cos Bx,**

**The AMPLITUDE is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The PERIOD is \_\_\_\_\_\_\_\_\_\_\_\_\_**

**SKETCH:**

1. **Y = 3 cos 2x Describe the amplitude and period. Amp = \_\_\_\_\_\_ per=\_\_\_\_\_\_**



1. **Y = -4 sin x Describe the amplitude and period. Amp = \_\_\_\_\_\_ per=\_\_\_\_\_\_**



Give the amplitude and the period of the following:

1. Y = 2 cos(4x) 2. Y = sin() 3. Y = cos (3x)