



# Accelerated PreCalculus

## Unit 3: Introduction to Trigonometric Functions

### References

**Textbook Connection:**  
**Foerster PreCalculus**  
**Text: Chapter 5**

#### Helpful Links:

- [Learn Zillion Video](#)
- [Learn Zillion Video](#)
- [Learn Zillion Video](#)
- [Learn Zillion Video](#)
- [Learn Zillion Video](#)
- [Khan Academy Video](#)
- [Khan Academy Video](#)
- [Khan Academy Video](#)
- [Khan Academy Video](#)

### Dear Parents,

In this unit, students will be introduced to a basic understanding of trigonometric functions, which will be further developed upon in Unit 2. Students will apply their understanding of right triangle trig, learned in Geometry, and apply it to the unit circle. Students will also learn how to graph trig functions along with identifying and understanding characteristics specific to trig functions.

---

### Concepts Students will Use & Understand

- Explain what is meant by the radian measure of an angle.
- Define the trigonometric functions in terms of a point on the unit circle.
- Be able to determine the trigonometric values of one of the special real numbers by using the reference number of that real number.
- Be able to graph a trigonometric function and identify its characteristics.
- Know what is meant by the amplitude, the period, and the phase shift of a trigonometric function.
- Be able to write an equation of a trigonometric function given the characteristics of that function.
- Be able to explain why  $(\sin t)^2 + (\cos t)^2 = 1$  is an identity, and use it to solve problems.

---

### Vocabulary

- Standard Position
- Initial Side
- Terminal Side
- Co-terminal Angle
- Reference Angle
- Unit Circle
- Radian
- Subtended Arc
- Sinusoidal Function
- Midline
- Amplitude
- Period
- Frequency

For further help:

- <http://www.teachers.ash.org.au/jeather/maths/dictionary.html>
- <http://intermath.coe.uga.edu/dictionary/homepg.asp>
- <http://www.amathsdictionaryforkids.com/>

# Sample Practice Problems

## Example 1

Convert  $78^\circ$  to radians.

Convert  $\frac{2\pi}{3}$  radians to degrees.

## Example 2

Find the coordinates of the point where the terminal side of a  $330^\circ$  angle intersects the unit circle.

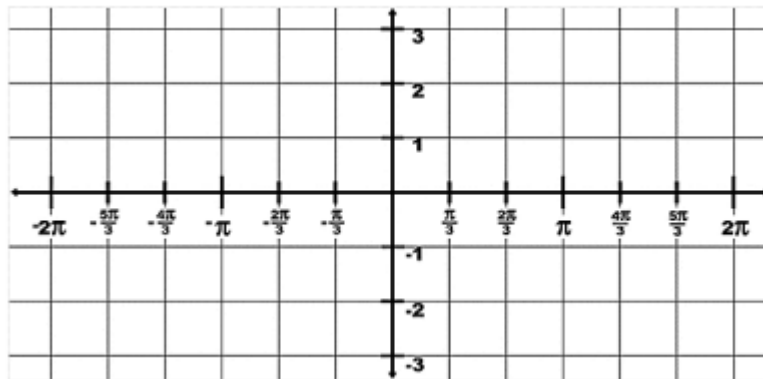
## Example 3

What is the  $\cos \frac{7\pi}{6}$ ?

## Example 4

Graph the function  $f(x) = 2 \sin x$  over the restricted domain  $[-2\pi, 2\pi]$ .

Then describe the period, midline, amplitude, and frequency.



## Example 5

Write an equation to describe the graphed function.

