



PreCalculus

Unit 4: Trigonometric Functions

References

Textbook Connection:
Glencoe PreCalculus Text:
Chapter 4
www.connected.mcgraw-hill.com

Helpful Links:

GA Virtual Learning

<http://cms.gavirtualschool.org/Shared/Math/GSEPreCalculus/TrigonometricFunctions/index.html>

Unit Circle Self-Assessment

http://www.talljerome.com/NOLA/100528_unitcircle.htm

Unit Circle Formula

<http://www.mathwarehouse.com/unit-circle/graph-and-formula-unit-circle.php>

Unit Rate & Trigonometric Ratios

<http://www.mathsisfun.com/algebra/trig-interactive-unit-circle.html>

Regent's Prep: Working w/
Inversion Trig Functions

<http://www.regentsprep.org/regents/math/algtrig/att8/inversetrig2.htm>

Dear Parents,

Building on standards from Unit 3, students extend their study of the unit circle and trigonometric functions. Students will create inverses of trigonometric functions and use the inverse functions to solve trigonometric equations that arise in real-world problems.

Concepts Students will Use & Understand

- Build upon understanding of the trigonometric functions
- Use special right triangles to determine the x- and y-coordinates of angles on the unit circle.
- Investigate how the symmetry of the unit circle helps to extend knowledge to angles outside of the first quadrant
- Use the symmetry of the unit circle to define sine and cosine as even and odd functions
- Investigate inverse trigonometric function
- Use trigonometric inverses to solve equations and real-world problems.

Vocabulary

Co-terminal Angle: Two angles are co-terminal if they are drawn in the standard position and both have their terminal sides in the same location.

Even Function: A function f is even if the graph of f is symmetric with respect to the y-axis.

Algebraically, f is even if and only if $f(-x) = f(x)$ for all x in the domain of f .

Odd Function: A function f is odd if the graph of f is symmetric with respect to the origin. Algebraically, f is odd if and only if $f(-x) = -f(x)$ for all x in the domain of f .

Reference Angle: A reference angle for angle θ is the positive acute angle made by the terminal side of angle θ and the x-axis.

Special Right Triangles: Refers to the 45-45-90 and 30-60-90 right triangles

Terminal side of angle: The initial side of an angle lies on the x-axis. The other side, known as the terminal side, is the one that can be anywhere and defines the angle.

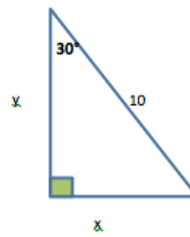
Unit Circle: A unit circle is a circle that has a radius of one unit.

For further help: <http://www.teachers.ash.org.au/jeather/maths/dictionary.html>

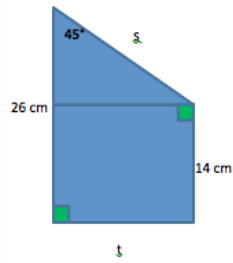
<http://intermath.coe.uga.edu/dictnary/homepg.asp>

<http://www.amathsdictionaryforkids.com/>

Sample Practice Problems



1) What is the value of x ?



2) What is the value of s ?

3) Find the values on the interval $(-\frac{\pi}{2}, \pi)$ that satisfies the equation: $\text{Sin}^{-1}\left(-\frac{\sqrt{2}}{2}\right) = x$

- A. $x = \frac{\pi}{3}$
- B. $x = -\frac{\pi}{4}$
- C. $x = \frac{3\pi}{2}$
- D. $x = 0$

4) Solve for all values of x . Give a general solution in radians.

$$\cos x = \frac{1}{2}$$

5) Solve for all values of x . Give a general solution in radians.

$$\sin x = -\frac{1}{2}$$