

LESSON 9: TRIGONOMETRIC FUNCTIONS

Objectives: 1. To define trig functions by means of the unit circle
2. To summarize important properties and identities of trig functions

Radian Measure

The Unit Circle

Values for Important Angles

Symmetry

Properties and Identities

Graphs of Trig Functions

Solving Trigonometric Equations

Examples

1. Find all solutions

- a. $\cos x = -\frac{\sqrt{3}}{2}$.
- b. $\tan 2x = \sqrt{3}$
- c. $\csc 4x = -2$

Problems

1. For $0 \leq x \leq 2\pi$, solve the following

- a. $2\sin^2 x = 1$
- b. $\tan^2 x - \tan x = 0$
- c. $\sec x \csc x = 2\sec x$
- d. $\cos^2 x + \sin x = 1$
- e. $-2\sin 6x + 1 = 0$

2. Let $f(x) = \left| \sin x - \frac{1}{2} \right|$. The maximum value attained by f is

- a. $\frac{1}{2}$
- b. 1
- c. $\frac{3}{2}$
- d. $\frac{\pi}{2}$
- e. $\frac{3\pi}{2}$