

Unit #3: Trigonometry

Topic: Solving Basic Trig Equations

Objective: SWBAT solve basic trig equations by using the unit circle.

Warm Up #3:

Solve the following equation for $0 \leq x \leq 2\pi$: $\sqrt{2}\sin x + 1 = 0$

A trig equation is an equation with the variable expressed in terms of a trigonometric function.

We can treat the trig function as the variable and use appropriate methods to solve.

Example #1: Find all values of θ for $0 \leq \theta \leq 2\pi$ if $4 + 9\tan^2\theta = 7$

Example #2: Find all solutions of $2\sin^2 2x = 1$ in the interval $[0, 2\pi)$.

 Homework

Assignment(s): Complete practice problems #1 – 16

Problem Set #3: Solve each of the following equations for $0 \leq x \leq 2\pi$.

1) $2\cos^2 x - \sqrt{3}\cos x = 0$

2) $\sin^2 x - 1 = 0$

3) $\tan^2 x + \tan x = 0$

4) $3\sec^4 x - 6\sec^2 x = 0$

5) $3\cot^3 x = \cot x$

6) $4\cos^2 x - 3 = 0$

7) $\tan x \csc x - 2\tan x = 0$

8) $3\csc^2 x - 4 = 0$

9) $3\cot^2 x + 7 = 8$

10) $2\cos^2 x + \cos x = 0$

11) $\sin x - 2\sin x \cos x = 0$

12) $\sqrt{3}\tan x \sec x + 2\tan x = 0$

13) $\sin x + \sqrt{2} = -\sin x$

14) $3\tan\left(\frac{x}{2}\right) + 3 = 0$

15) $4\sin^2 x + 5 = 6$

16) $\frac{\csc x}{5} + \frac{\csc x}{3} = \frac{16}{15}$