

Unit #3: Trigonometry

Topic: Solving Trig Equations with Factoring

Objective: SWBAT solve quadratic trig equations by factoring or using the quadratic formula.

Warm Up #4:

If $\sin 4\theta = -\frac{\sqrt{3}}{2}$, where θ is an acute angle, what is the exact value of θ ?

A second-degree trig equation may be solved the same way we solve a quadratic equation either by factoring or by using the quadratic formula.

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

Example #2: Find all values of θ for $0 \leq x \leq 2\pi$ if $3\tan^2 x - 3\tan x - 1 = 0$

Problem Set #4: Solve each of the following equations for $0 \leq x \leq 2\pi$.

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

2) $6\cos^2 x + 5\cos x - 4 = 0$

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

$$4) 3\cos^2 x + 10\cos x + 2 = 0$$

$$5) 2\sin x - 1 = \frac{3}{\sin x}$$

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

7) $2\sin^2 x + 6\sin x - 5 = 0$

8) $4\cos^2 x - 1 = 0$

HomeworkAssignment(s): page 400 #15, 23, 27, 38, 46, 47, 56, and 58