

Lesson 7.4: Basic Trigonometric Equations

A trigonometric equation is an equation that contains _____ .

For example, the trig identity: $\sin^2(\theta) + \cos^2(\theta) = 1$ is a trigonometric equation that is true for any value of _____ .

Solving Basic Trigonometric Equations

To solve a trigonometric equation, we need to find all values of _____ that make the equation true. (Note: Solving and verifying (or proving) are not the same thing.)

Examples:

1. Solve the equation $\sin(\theta) = \frac{1}{2}$ for all values of θ .
2. Solve the equation $\cos(\theta) = \frac{-\sqrt{2}}{2}$ for all values of θ and list 8 specific solutions.
3. Solve the equation $\cos(\theta) = 0.65$.

4. Find all solutions of the equations below.

a. $2 \sin(\theta) - 1 = 0$

b. $\tan^2(\theta) - 3 = 0$

Solving Trigonometric Equations by Factoring

Examples:

1. Solve the equation $2 \cos^2(\theta) - 7 \cos(\theta) + 3 = 0$

2. Solve the equation $5 \sin(\theta) \cos(\theta) + 4 \cos(\theta) = 0$