

Section 8.7

Trigonometric Equations (I)

OBJECTIVE 1

- ✓ **Solve Equations Involving a Single Trigonometric Function**

EXAMPLE

Checking Whether a Given Number Is a Solution of a Trigonometric Equation

Determine whether $\theta = \frac{\pi}{4}$ is a solution of the

equation $2 \sin \theta + \sqrt{2} = 0$. Is $\theta = \frac{5\pi}{4}$ a solution?

EXAMPLE

Finding All the Solutions of a Trigonometric Equation

Solve the equation: $2 \cos \theta - \sqrt{3} = 0$

Give a general formula for all the solutions. List eight of the solutions.

EXAMPLE

Solving a Linear Trigonometric Equation

Solve the equation: $2 \cos(2\theta) - 1 = 0$, $0 \leq \theta < 2\pi$

EXAMPLE

Solving a Trigonometric Equation

Solve the equation: $\sqrt{3} \tan(3\theta) + 1 = 0$, $0 \leq \theta < 2\pi$

EXAMPLE

Solving a Trigonometric Equation

Solve the equation: $\cos\left(\theta - \frac{\pi}{4}\right) = 1, 0 \leq \theta < 2\pi$

EXAMPLE

Solving a Trigonometric Equation with a Calculator

Use a calculator to solve the equation: $\cos \theta = 0.2$, $0 \leq \theta < 2\pi$ Express any solutions in radians, rounded to two decimal places.