Section 8.7

Trigonometric Equations (I)
OBJECTIVE 1

1. Solve Equations Involving a Single Trigonometric Function
Determining 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: \(2 \cos(2\theta) - 1 = 0, \ 0 \leq \theta < 2\pi\)
Solve the equation: \( \sqrt{3} \tan(3\theta) + 1 = 0 \), \( 0 \leq \theta < 2\pi \)
Solve the equation: \[ \cos\left(\theta - \frac{\pi}{4}\right) = 1, \quad 0 \leq \theta < 2\pi \]
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.