Linear Methods

CLASSROOM EXAMPLE 1 **Solving a Trigonometric Equation (Linear Methods)**

Solve the equation $3\tan\theta - \sqrt{3} = 0$

(a) over the interval $[0°, 360°)$ **(b)** for all solutions.

Zero-Factor Property Method

CLASSROOM EXAMPLE 2 **Solving a Trigonometric Equation (Zero-Factor Property)**

Solve $\cos\theta \cot\theta = -\cos\theta$ over the interval $[0°, 360°)$.

Quadratic Methods

CLASSROOM EXAMPLE 3 **Solving a Trigonometric Equation (Zero-Factor Property)**

Solve $3\sin^2 x - \sin x - 2 = 0$ over the interval $[0, 2\pi)$.

CLASSROOM EXAMPLE 4 Solving a Trigonometric Equation (Quadratic Formula)

Find all solutions of $\cos x (\cos x + 2) = 1$.

Trigonometric Identity Substitutions

CLASSROOM EXAMPLE 5 Solving a Trigonometric Equation (Squaring)

Solve $\cot x - \sqrt{3} = \csc x$ over the interval $[0, 2\pi)$.

Equations with Half-Angles

CLASSROOM EXAMPLE 6 Solving an Equation with a Half-Angle

Solve the equation $2\cos\dfrac{x}{2} - \sqrt{2} = 0$

(a) over the interval $[0, 2\pi)$ **(b)** for all solutions.

Equations with Multiple Angles

CLASSROOM EXAMPLE 7 Solving an Equation Using a Double Angle Identity

Solve $\cos 2x = \sin x$ over the interval $[0, 2\pi)$.

CLASSROOM EXAMPLE 8 Solving an Equation Using a Double-Angle Identity

Solve the equation $2\cos^2 \theta - 2\sin^2 \theta + 1 = 0$

(a) over the interval $[0°, 360°)$ **(b)** for all solutions.