1 Section 6.6 Trigonometric Equations

Example 1 Find the solution set of \(2 \sin x = 1\) in the interval \(0 \leq x < 2\pi\).

Example 2 Find the solution set of \(2 \sin x = 1\)

Solve by Factoring

Example 3 Solve \(4 \sin x \cos^2 x - 3 \sin x = 0\), where \(0 \leq x < 2\pi\).

Solve by Squaring Each Side of the Equation

Example 4 Solve \(\sin x - \cos x = 1\), where \(0 \leq x < 2\pi\).

Solve by Using the Quadratic Formula

Example 5 Solve \(\sin^2 x - \sin x - 1 = 0\), where \(0 \leq x < 2\pi\).

Solving Equations that Contains Multiple Angles

Example 6 Solve \(\cos 4x = \frac{\sqrt{2}}{2}\)

Example 7 Solve \(\cos 3x = 1\), where \(0^\circ \leq x \leq 360^\circ\).

Example 8 Solve \(2 \cos^2 3\theta - 2 \cos 3\theta - \sqrt{3} \cos 3\theta + \sqrt{3} = 0\), where \(0^\circ \leq x \leq 360^\circ\).

Example 9 Solve the following: 1) \(2 \sin^3 x = \sin x\) 2) \(\cos x + 3 = 0\) 3) \(\sin \left(2x + \frac{\pi}{6}\right) = -\frac{1}{2}\) 4) \(\cos 2x \cos x + \sin 2x \sin x = -1\)