Section 8.5

SOLVING TRIGONOMETRIC EQUATIONS

Example 1

Consider the equation $2\sin(t) = \sqrt{3}$.

(1) Find the solutions to the equation on $[0,2\pi]$.

(2) Find all solutions

Example 2

Consider the equation $4\cos(t) = -2$.

(1) Find the solutions to the equation on $[0,2\pi]$.

(2) Find the solutions to the equation on $[-\pi, \pi]$.

Example 2 continued

Consider the equation $4\cos(t) = -2$.

(3) Find all solutions

Example 3

Find all solutions of the equation $\sin(t) = .312$.

Example 4

Find all solutions of the equation $\tan(t) = \sqrt{3}$.

Example 5

(1) Find all solutions of the equation $\sin(2x) = \frac{1}{\sqrt{3}}$.

Example 5 continued

(2) Write down all solutions that are within the interval $[0,2\pi]$.

Example 6

(1) Find all solutions of the equation $\cot(3x) = \sqrt{3}$.

Example 6 continued

(2) Write down all solutions that are within the interval $[0,2\pi]$.

Example 7

Solve the equation $4\sin^2(x) = 3$.

Example 8

Solve the equation $\sin(2x) = .3\cos(x)$.

Example 9

Solve the equation $2\sin^2(x) + \sin(x) = 1$.

Example 10

Solve the equation $\cos(2x)\left[\sqrt{3}\tan(2x) - 1\right] = 0$.