

# **Section 6.7**

## **Trigonometric Equations (I)**

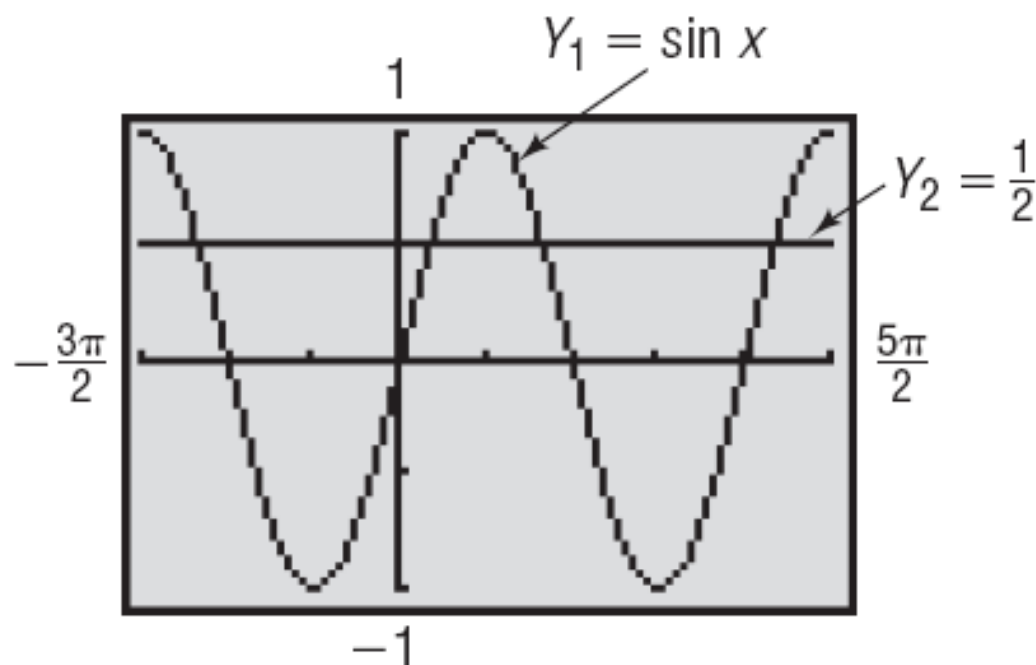
# OBJECTIVE 1

- 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  $\sin \theta = \frac{1}{2}$ . Is  $\theta = \frac{\pi}{6}$  a solution?

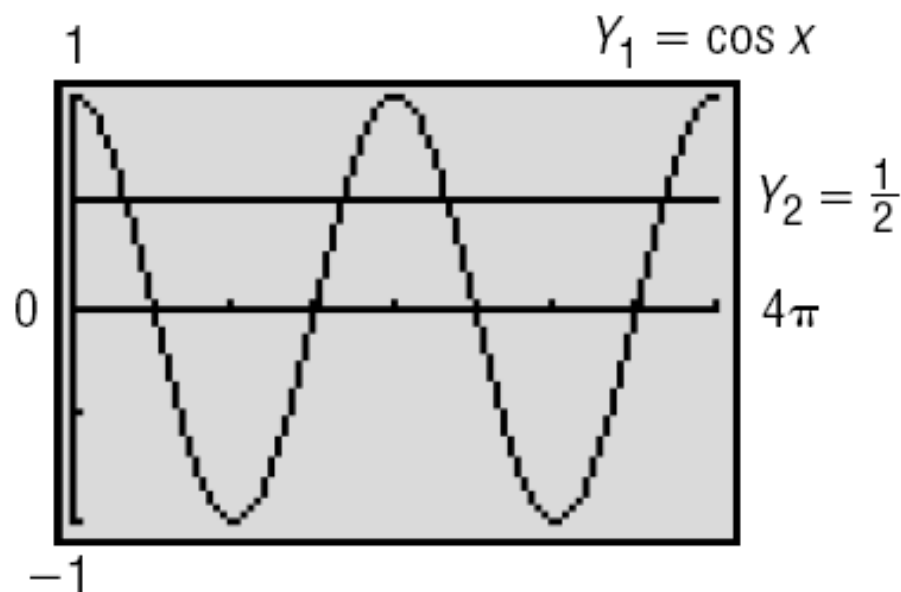
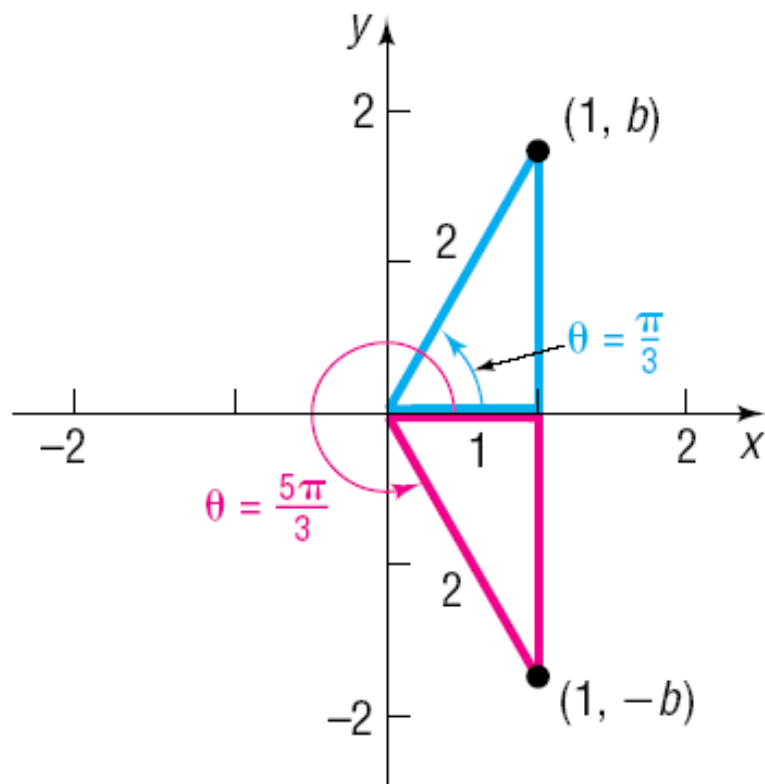


# EXAMPLE

## Finding All the Solutions of a Trigonometric Equation

Solve the equation:  $\cos \theta = \frac{1}{2}$

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



## EXAMPLE

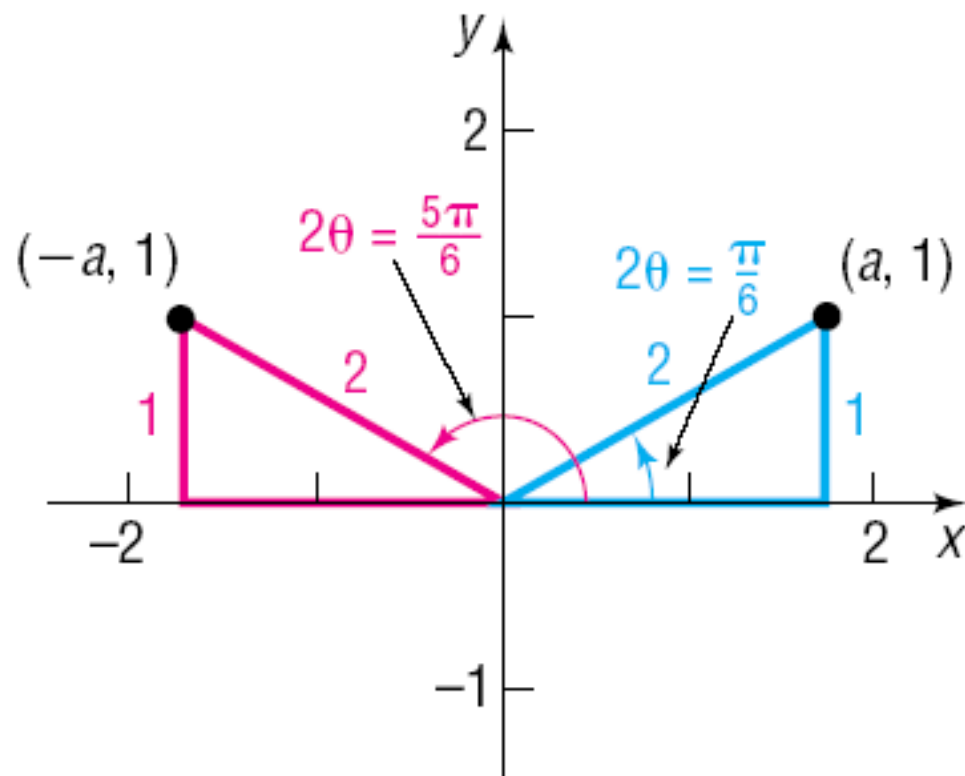
### Solving a Linear Trigonometric Equation

Solve the equation:  $2 \sin \theta + \sqrt{3} = 0$ ,  $0 \leq \theta < 2\pi$

## EXAMPLE

# Solving a Trigonometric Equation

Solve the equation:  $\sin(2\theta) = \frac{1}{2}$ ,  $0 \leq \theta < 2\pi$



## EXAMPLE

# Solving a Trigonometric Equation

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

# EXAMPLE

## Solving a Trigonometric Equation with a Calculator

Use a calculator to solve the equation:  $\sin \theta = 0.3, 0 \leq \theta < 2\pi$  Express any solutions in radians, rounded to two decimal places.

```
sin-1(.3)  
.304692654
```

