Section 6.3 Trigonometric Functions of Any Angle

Objective: In this lesson you learned how to evaluate trigonometric functions of any angle.

I. Introduction (Pages 476–477)

Let $\theta$ be an angle in standard position with $(x, y)$ a point on the terminal side of $\theta$ and $r = \sqrt{x^2 + y^2} \neq 0$. Complete the following definitions of the trigonometric functions of any angle:

\[
\begin{align*}
\sin \theta &= \underline{\text{ }} & \cos \theta &= \underline{\text{ }} \\
\tan \theta &= \underline{\text{ }} & \cot \theta &= \underline{\text{ }} \\
\sec \theta &= \underline{\text{ }} & \csc \theta &= \underline{\text{ }} \\
\end{align*}
\]

Name the quadrants in which the sine function is positive.

Name the quadrants in which the sine function is negative.

Name the quadrants in which the cosine function is positive.

Name the quadrants in which the cosine function is negative.

Name the quadrants in which the tangent function is positive.

Name the quadrants in which the tangent function is negative.
Example 1: If \( \sin \theta = \frac{1}{2} \) and \( \tan \theta < 0 \), find \( \cos \theta \).

II. Reference Angles (Pages 478–481)

Example 2: Find the reference angle \( \theta' \) for
(a) \( \theta = 210^\circ \)  
(b) \( \theta = 4.1 \)

To find the value of a trigonometric function of any angle \( \theta \), . . .

Example 3: Evaluate \( \sin \frac{11\pi}{6} \).

III. Trigonometric Functions of Real Numbers (Pages 482–483)

The sine function’s domain is \( \ldots \), and its range is \( \ldots \).

The cosine function’s domain is \( \ldots \), and its range is \( \ldots \).

The period of the sine function is \( \ldots \). The period of the cosine function is \( \ldots \).

Which trigonometric functions are even functions?

Which trigonometric functions are odd functions?

Homework Assignment

Page(s)

Exercises