

Section 4.4 Trigonometric Functions of Any Angle

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

Course Number

Instructor

Date

Important Vocabulary Define each term or concept.

Reference angles

I. Introduction (Pages 288–289)

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

$$\sin \theta = \underline{\hspace{2cm}} \qquad \cos \theta = \underline{\hspace{2cm}}$$

$$\tan \theta = \underline{\hspace{2cm}} \qquad \cot \theta = \underline{\hspace{2cm}}$$

$$\sec \theta = \underline{\hspace{2cm}} \qquad \csc \theta = \underline{\hspace{2cm}}$$

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.

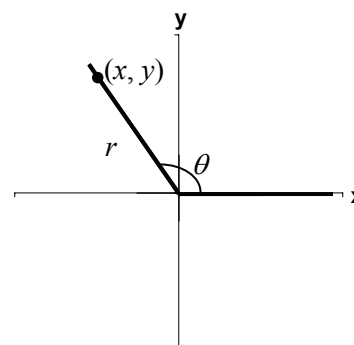
Name the quadrants in which the cosine function is negative.

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 $\cos \theta$.

What you should learn
How to evaluate trigonometric functions of any angle



II. Reference Angles (Page 290)

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

What you should learn

How to use reference angles to evaluate trigonometric functions

III. Trigonometric Functions of Real Numbers
(Pages 291–293)

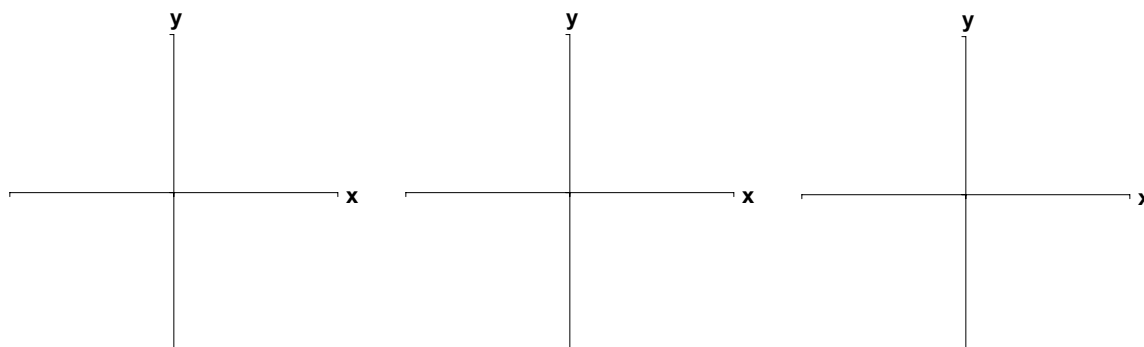
To find the value of a trigonometric function of any angle θ , . . .

What you should learn

How to evaluate trigonometric functions of real numbers

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

Example 4: Evaluate $\cos 240^\circ$.

**Homework Assignment**

Page(s)

Exercises