

Agenda/Objectives/Notes PAPPC Section 4.4

Starter Problem: Give one positive and one negative coterminal angle for $\cos\left(-\frac{8\pi}{3}\right)$ then evaluate the angle.

Today's Agenda

1. Starter problem
2. Review assignment due
3. Today's objectives: You will be able to
 - A) Evaluate trigonometric functions of an acute angle
 - B) Use the fundamental trigonometric identities
 - C) Use a calculator to evaluate trigonometric functions
 - D) Use trigonometric functions to model and solve real-live problems.
4. Today's assignment: 318/Vocab 1-3, 3, 7-23 EOO, 25-35 odd, 41, 51, 57, 59, 61, 69, 71, 81, 83, 85, 89, 91

Notes/Examples

You must know the following definitions and identities.

Right Triangle Definitions of Trigonometric Functions

$\sin \theta = \frac{\text{opp}}{\text{hyp}}$	$\cos \theta = \frac{\text{adj}}{\text{hyp}}$	$\tan \theta = \frac{\text{opp}}{\text{adj}}$
$\csc \theta = \frac{\text{hyp}}{\text{opp}}$	$\sec \theta = \frac{\text{hyp}}{\text{adj}}$	$\cot \theta = \frac{\text{adj}}{\text{opp}}$

Fundamental Trigonometric Identities

Reciprocal identities

$$\sin \theta = \frac{1}{\csc \theta} \quad \cos \theta = \frac{1}{\sec \theta} \quad \tan \theta = \frac{1}{\cot \theta}$$

$$\csc \theta = \frac{1}{\sin \theta} \quad \sec \theta = \frac{1}{\cos \theta} \quad \cot \theta = \frac{1}{\tan \theta}$$

Quotient identities

$$\tan \theta = \frac{\sin \theta}{\cos \theta} \quad \cot \theta = \frac{\cos \theta}{\sin \theta}$$

Pythagorean Identities

$$\sin^2 \theta + \cos^2 \theta = 1 \quad 1 + \tan^2 \theta = \sec^2 \theta$$

$$1 + \cot^2 \theta = \csc^2 \theta$$

Solving Right Triangles: a right triangle is solved when all side and angle measurements are found: