Pythagorean Identity in Trigonometry

Today's Standard

HSF.TF.C8 - Prove the Pythagorean identity $\sin^2() + \cos^2() = 1$ and use it to find sin(), cos(), or tan() given sin(), cos(), or tan() and the quadrant of the angle.

Real-World Applications for this Standard

Analyzing sound waves in physics; Modeling periodic phenomena in engineering; Calculating angles in computer graphics; Solving real-world problems involving right triangles; Understanding wave functions in quantum mechanics

Today I Learned

Today, we learned about a special rule in math called the Pythagorean identity. It helps us understand how the sine and cosine of an angle add up to 1.

Common Stumbling Blocks

Some students think the rule only works for certain angles, but it works for all angles. Others forget to check which part of the circle the angle is in, which changes the signs of the numbers.

Quiz Me

- What is the Pythagorean identity?
- What is sine?
- What is cosine?
- Does the identity work for all angles?
- Why do signs change in different parts of the circle?

Help Me

The Pythagorean identity is like a rule that helps us solve problems with angles and triangles. We can use it to find missing numbers in real-life situations, like finding the height of a tree using shadows.