# Summary of Fundamental Trigonometric Identities

Identities enable us to simplify complicated expressions. They are the basic tools of trigonometry used in solving trigonometric equations, just as factoring, finding common denominators, and using special formulas are the basic tools for solving algebraic equations.

The **Pythagorean identities** are based on the properties of a right triangle.

The **even-odd identities** relate the value of a trigonometric function at a given angle to the value of the function at the opposite angle.

The **reciprocal identities** define reciprocals of the trigonometric functions.

The **quotient identities** define the relationship among the trigonometric functions.

# Using Algebra to Simplify Trigonometric Expressions

Simplifying trigonometric expressions requires algebra. Make sure you are familiar with the basic algebraic properties and formulas, such as the difference of squares and substitution.

Examples

1. Rewrite the following trigonometric expressions as algebraic expressions and then simplify.
2. Simplify the expressions by rewriting and using identities.
3. Simplify the first trigonometric expression by writing the simplified form in terms of the second expression.