Trigonometry 2.1~ Fundamental Identities

*You will recognize and write the fundamental identities.

* Use the fundamental identities to evaluate, simplify and rewrite trigonometric expressions.

Terminology

Expression

Equation

Identity

Identities we already know:

    Reciprocal identities

    Quotient identities

    Pythagorean identities

    Cofunction identities

Examples of using identities:

    a. To solve a problem:
        sec u = -5/4 and tan u > 0   Find sin u.

    b. To simplify an expression:

$$\frac{1}{\tan^2 x + 1}$$

c. Simplify $\cos t\,(1+\tan^2 t)$

d. Use algebra on trigonometric expressions

   Factor: $\sin^2 x \sec^2 x - \sin^2 x \;=\;$

e. Simplify: $\dfrac{\cos^2 x - 4}{\cos x - 2}$

f. Multiply: $(3 - \sin x)(3 + \sin x)$

Try these:

a. Simplify: $\dfrac{\cot^2 x}{\csc^2 x}$

b. Simplify: $\tan x - \dfrac{\sec^2 x}{\tan x}$

c. Simplify: $\dfrac{\tan^2 x}{\sec x + 1}$