Math 3 7.4 Simplifying Trig Identities Unit 7

*SWBAT simplify and verify simple trigonometric identities.*

**Identity:** A mathematical statement that is ALWAYS true!

|  |  |  |  |
| --- | --- | --- | --- |
| **Trigonometric Identities:** |  |  |  |
| **Reciprocal Identities:** |  |  |  |

We can use the basic identities of trig. functions to verify other identities. To verify an identity, you can use previously known identities to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ one side of the equation to look like the other.

**Example 1:** Simplify:

**Example 2:** Simplify: ****

**You Try!** Simplify the following. Remember, bring everything back into terms of sine and cosine first!

1. sin θ sec θ
2. 
3. (tan x)(cos x)(csc x)

**Verifying Trigonometric Identities**

To verify a trig identity, you need to prove that the two sides of the equation are equivalent. To do this, start by working with the “tougher” side of the equation. Remember, bring everything back into terms of sine and cosine first!

**Example 3:** Verify the identity

**You Try**! Verify that 

Homework 7.4: Simplifying Trigonometric Identities

Math 3

**Directions:** For questions #1-10, simplify each expression.

1. csc *θ* tan *θ*
2. sec *θ* cos2 *θ*
3. tan *θ* cot *θ*
4. cos *θ* cot *θ* + sin *θ*
5. ****
6. sec *θ* tan *θ* csc *θ*
7. cos *θ* tan *θ*
8. ****
9. ****
10. ****

**Directions:** For questions #11 - , verify each identity.

1. sin *θ* sec *θ* cot *θ* = 1
2. csc*θ* = cot *θ* sec *θ*
3. cos*θ* csc*θ* tan*θ* = 1
4. ****
5. ****
6. sin *θ* tan *θ* + cos *θ* = sec *θ*
7. sec *θ* = tan *θ* csc *θ*
8. sec *θ* cot *θ* = csc *θ*
9. sec *θ* = csc *θ* tan *θ*
10. ****