Precal 5.1: Verifying Trig Identities

GOAL: Show one side can be simplified so it is identical to the other side.

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| **Reciprocal Identities** | **Quotient Identities** | **Pythagorean Identities** |
|  |  |  *Hint: only use these if tangent and cotangent are mixed with other trig functions* | Solve each of these for the other trig function:  |

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|  **Try:** | **Hints:** |
| * Changing to sines/cosines
* Combining fractions
* Separating fractions
* Using formula (esp with 1 or trig²x)
 | * Factoring (try changing to variables first)
* Simplifying parentheses
* SOMETHING!!
 | * Copy carefully!
* Start with the most complicated side
* Don’t undo what you just did
* Only deal with one side
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| 1. sec x cot x = csc x2. sinθ (cot θ + tanθ) = sec θ3. cos x – cos x sin² x = cos³ x4. sec θ + tan θ = 5. 6. csc x + cot x = 7. csc θ sin θ – sin² θ = cos² θ8. (csc θ + cotθ)(cscθ – cot θ) = 19. sinθ csc θ = 110. 11. cos² x − sin²x = 1 – 2sin²x | 12. cot²y(sec²y – 1) = 113. 14. cosθ(tanθ + cot θ) = csc θ15. (sec θ – 1)(sec θ + 1) = tan²θ16. (sinθ + cosθ)² + (sinθ – cosθ)² = 217. tan² x + 6 = sec² x + 518. tan θ cot θ – cos² θ = sin² θ19. 20.  21. sec4θ – sec²θ = tan4θ +tan²θ 22. cos²θ(1 + tan²θ) = 1 | If you feel overwhelmed, take a moment to enjoy this pig with a flower. |