Unit #3: Trigonometry
Topic: Proving Trigonometric Identities
Objective: SWBAT prove that a trigonometric identity is true.

Warm Up #6:

If $x = \frac{5\pi}{6}$, show that $sec^2 x tan^2 x + sec^2 x = sec^4 x$.

Proving Trigonometric Identities:

Remember an identity is an equation that is true for all defined values of a variable.

We are going to use the identities that we have already established to "prove" or establish other identities.

Guidelines for Proving/Verifying Identities:

1. Start with the _____ side of the equation.

2. _____ an expression, add _____, _____ a binomial, or create a _____ denominator, if possible.

3. Use the _____, whenever possible.

4. Convert all terms to _____ and _____.

5. Always try _____.

Example #1: Prove $cot^2x - cos^2x = cot^2xcos^2x$

Example #2: Prove $\frac{cscx + secx}{sinx + cosx} = cotx + tanx$

Problem Set #6: Prove each of the following trig identities.

1) $sec^2xcotx - cotx = tanx$	2) $sinxcscx - cos^2x = sin^2x$

3) $(tan^2y + 1)(cos^2y - 1) = -tan^2y$	4) $cosx(tan^2x + 1) = secx$
5) $sin^3\theta + sin\theta cos^2\theta = sin\theta$	6) $sin^4x - cos^4x = 2sin^2x - 1$
7) $\frac{sec^2x - 1}{sec^2x} = sin^2x$	8) $\frac{sint}{1+cost} + \frac{1+cost}{sint} = 2csct$

9) $\frac{2cos^2y-sin^2y+1}{cosy} = 3cosy$	10) $(secx - tanx)(cscx + 1) = cotx$
11) $\frac{cscx + cotx}{tanx + sinx} = cotxcscx$	12) $\frac{1}{1-secx} + \frac{1}{1+secx} = -2cot^2x$

Assignment(s): Finish packet #1-12