Math IV – UNIT 6 QUIZ 3: Verifying Trigonometric Identities

Name: _____ Date: _____ Period: _____

PICK 4 of the following identities to verify. Show all work. (HINTS ARE PROVIDED at the bottom!!)

Write question number and show all work in the boxes provided. Put a check on the final step showing verification.

1.) $\frac{1+\tan x}{\sin x+\cos x} = \sec x$

2.) $\frac{\sin x}{1+\cos x} + \frac{1+\cos x}{\sin x} = 2\csc x$

3.) $\frac{\cos x}{1-\sin x} - \frac{1+\sin x}{\cos x} = 0$

4.) $\frac{1}{\sin x-1} - \frac{1}{\sin x+1} = -2sec^2x$

5.) $\frac{\cos x}{1-\sin x} = \sec x + \tan x$

6.) $(\sec x - \tan x)^2 = \frac{1-\sin x}{1+\sin x}$

7.) $\cos x\, sec^2 x \tan x - \cos x\, tan^3 x = \sin x$

#_____	#_____
#_____	#_____

HINTS: **1.) Common denominator first, then dividing fraction by fraction. 2.) Common denominator first, then factor. 3.) Common denominator first, then look for an identity. 4.) Common denominator first, then combine like terms and look for an identity (or close to one). 5.) Conjugate, then identity, then simplify. 6.) Reciprocal Identity, then square, then look for Pythagorean Identity. 7.) Factor first.**

EXTRA CREDIT (10 points) – Show all work on back of quiz to receive extra credit!!

1st period Math IV

A.) Use trigonometric identities to prove that the following is always true: $\frac{\sin x \cdot \cos x}{\sin x + \cos x} = \sec x + \csc x$

Once finished with (4) questions on front and this bonus on back, TURN IN QUIZ and IDENTITY ORGANIZER.

EXTRA CREDIT (10 points) – Show all work on back of quiz to receive extra credit!!

4th period AM III

B.) Use trigonometric identities to verify that the following is an identity (*HINT: You will need to multiply by the conjugate of the denominator!*):

$$\frac{tanx}{secx + 1} = csc\, x - \cot x$$

Once finished with (4) questions on front and this bonus on back, TURN IN QUIZ and IDENTITY ORGANIZER.

EXTRA CREDIT (10 points) – Show all work on back of quiz to receive extra credit!!

3rd period Math IV

B.) Use trigonometric identities to prove that the following is always true:

$$sin^4x - cos^4x = 2sin^2x - 1$$

Once finished with (4) questions on front and this bonus on back, TURN IN QUIZ and IDENTITY ORGANIZER.-

EXTRA CREDIT (10 points) – Show all work on back of quiz to receive extra credit!!

5th period Math IV

C.)Use trigonometric identities to prove that the following is always true:

$$cos^4x - sin^4x = 2cos^2x - 1$$

Once finished with (4) questions on front and this bonus on back, TURN IN QUIZ and IDENTITY ORGANIZER.

EXTRA CREDIT (10 points) – Show all work on back of quiz to receive extra credit!!

7th period Math IV

D.) Use trigonometric identities to prove that the following is always true:

$$cos^4x - sin^4x = 2cos^2x - 1$$

Once finished with (4) questions on front and this bonus on back,

TURN IN QUIZ and IDENTITY ORGANIZER.*

EXTRA CREDIT (10 points) – Show all work on back of quiz to receive extra credit!!

1st period Math IV Use trigonometric identities to prove that the following is always true:

A.) $\frac{\sin x \cdot \cos x}{\sin x + \cos x} = \sec x + \csc x$

3rd period Math IV Use trigonometric identities to prove that the following is always true:

B.) $\frac{\tan x+\sec x}{\cos x} = \sin x + 1$

5th period Math IV Use trigonometric identities to prove that the following is always true:

D.) $sin^4x - cos^4x = 2sin^2x - 1$

7th period Math IV Use trigonometric identities to prove that the following is always true:

E.) $sin^2x + tan^2x + cos^2x = sec^2x$