Advanced Math Name _____

Chapter 7 Objectives

7.1 Basic Trig Identities	
I know the 3 Pythagorean Identities	1a) Write them down!
I can simplify expressions using reciprocal and Pythagorean identities	1b) Simplify $\cos x + \sin x \tan x$ 1c) Simplify $\sin^2 x \cos^2 x - \cos^2 x$
I can express a value as a trig function in the first quadrant *Remember to check +/-	1d) Express $\cos 892°$ as a trig function of an angle in Quadrant I 1e) Express $\sin \frac{23\pi}{3}$ as a trig function of an angle in Quadrant I *(it's OK to convert to degrees)*
I can draw a triangle in the appropriate quadrant and find a trig value	Use the given information to determine the exact trig value if $0 < \theta < 90°$ 1f) If $\tan\theta = \frac{7}{2}$, find $\sin\theta$ 1g) If $\sin\theta = \frac{2}{3}$, find $\cot\theta$
7.2 Verifying Trig Identities	
I can verify trig identities by starting with the more complex of the two sides	Verify the following identities: 2a) $\tan x + \frac{\cos x}{1+\sin x} = \sec x$ 2b) $\frac{\csc x}{\cot x + \tan x} = \cos x$
I can find a numerical value of one trig function of x *(goal: last step to be trig function = #)*	2c) $\frac{\cot x}{\cos x} = 2$
7.3 Sum and Difference Identities	
I can use the sum and difference identity to find an exact value of a cosine function (remember to use values on from the unit circle)	3a) Find the exact value of $\cos 375°$ 3b) Find the exact value of $\cos \frac{5\pi}{12}$
I can use the sum and difference identity to find an exact value of a sine function	3c) Find the exact value of $\sin(-165°)$
I can use the sum and difference identity to find an exact value of a tangent function	3d) Find the exact value of $\tan 345°$
I know and can remember that *exact* means to use the UNIT CIRCLE and NO DECIMALS	

Given the measures of two angles in QI, I can first draw triangles and then use those to find the exact value of a function	3e) If both angles are in QI and $\sin x = \frac{3}{5}, \sin y = \frac{12}{37}$, find $\sin(x+y)$ 3f) If both angles are in QI and $\csc x = \frac{13}{5}, \cot y = \frac{4}{3}$, find $\tan(x-y)$
7.4 Double Angle and Half-Angle Identities	
Given an angle in the first quadrant, I can draw a triangle to find the exact value of a double angle function	4a) If $\sin\theta = \frac{1}{4}$ and θ has its terminal side in QI, find the exact value of $\sin 2\theta$
I can find a sine, cosine or tangent function using the double angle identity	4b) Given $\tan\theta = \frac{1}{2}$, $180° < \theta < 270°$, find $\sin 2\theta, \cos 2\theta, \tan 2\theta$
I can find a sine, cosine or tangent function using a half-angle identity	4c) Find the exact value of $\sin 105°$ 4d) Find the exact value of $\cos\frac{5\pi}{8}$ *(it's OK to convert to degrees)*
I can verify that an equation is an identity by using either the double-angle or half-angle identity	4e) Verify $1 + 2\sin x = (\sin x + \cos x)^2$
7.5 Solving Trig Equations	
I can explain what a principal value is and can identify the principal values for sine, cosine and tangent	5a) Identify them! (Look back to section 6.8)
I can solve a trig equations for the principal values of x	Solve each equation for *principal values of x* - express solutions in degrees 5b) $\cos x = 3\cos x - 2$ 5c) $2\sin^2 x - 1 = 0$
I can solve a trig equation for a given domain or all values of x	5d) Solve the equation for $0° \le x < 360°$, $\sec^2 x + \tan x - 1 = 0$ 5e) Solve for all real values of x, $2\sin^2 x - 5\sin x + 2 = 0$ 5f) Solve for all real values of x, $\tan x(\tan x - 1) = 0$