

Name: _____

Date: _____

Instructions: Please complete the following problems**Problem 1.** State the three Pythagorean identities.**Problem 2.** Simplify: $(\sec(x) + \tan(x))(\sec(x) - \tan(x))$ **Problem 3.** Simplify: $(1 + \tan(x))(1 - \tan(x)) + \sec^2(x)$ **Problem 4.** Factor and Simplify: $\cos^4(x) - \sin^4(x)$ **Problem 5.** Verify: $\sin(x) \tan(x) + \cos(x) = \sec(x)$ **Problem 6.** Verify: $(\cos(x) - \sin(x))(\cos(x) + \sin(x)) = 1 - 2\sin^2(x)$ **Problem 7.** Verify: $\frac{1-4\cos^2(x)}{1-2\cos(x)} = 1 + 2\cos(x)$