Math 121 Fa13 Chapter 7 and 8

Name: _____ TA: _____

Exam 3 Form B

1.) (4pts) Consider the function $f(x) = \tan^{-1} x$

a. What is the domain?

b. What is the range?

2.) (4pts) Solve the given equation on the interval $0 \leq \theta \leq 2\pi$: $tan\theta - 1 = 0$

3.) (8pts) $an\theta = \frac{4}{3}$, $\pi \leq \theta \leq \frac{3\pi}{2}$. Use this info to find:

a. $\cos(2\theta)$

b. $\sin(\frac{\theta}{2})$

4.) (12pts) Establish each identity. (Do NOT cross the equals sign).

a. $sin\theta(cot\theta + tan\theta) = sec\theta$

b. $\frac{tan\theta - cot\theta}{tan\theta + cot\theta} + 2cos^2\theta = 1$

c. $\frac{\cos(\alpha+\beta)}{cos\alpha cos\beta} = 1 - tan\alpha tan\beta$

5.) (4pts) A straight trail with an inclination of 17° leads from a hotel at an elevation of 9000 feet to a mountain lake of an elevation of 11,200 feet. What is the length of the trail? (Degree mode)

6.) (20pts) Find the Exact value of each expression. (Radian Mode)

a. $\cos^{-1}(1)$

b. $\sin^{-1}\left(\sin\left(\frac{9\pi}{4}\right)\right)$

c. $\sec(\tan^{-1}(-3))$

d. $\sec^{-1}(5)$

e. $\cot^{-1}(-\frac{3}{2})$

7.) (12pts) Solve each triangle. (Degree Mode)

a. $A = 110°,\ C = 30°,\ c = 3$

b. $b = 4,\ c = 5,\ B = 40°$

c. $a = 4,\ b = 3,\ c = 6$

8.) (8pts) Find the area of each triangle. (Round to two decimal place values)

a. $a = 6,\ b = 4,\ C = 60°$

b. $a = 5,\ b = 8,\ c = 9$