Honors Trigonometry Name _____

Copy original problem. Per _____ Date _____

Convince *me* that **you** understand the concept***!***

No Calculators!

Chapter 4 Exam

I

State the Domain and Range, show a sketch of the function and show the "memory device" for each of the following: (15 pts tot)

a) $a(x) = \cos^{-1} x$ b) $b(x) = \sin^{-1} x$ c) $c(x) = \tan^{-1} x$

d) $d(x) = \sec^{-1} x$ e) $e(x) = \csc^{-1} x$ f) $f(x) = \cot^{-1} x$

II

Solve $\forall\ x$ such that $0 \le x < 2\pi$ (15 pts ea)

a) $\tan 2x = \tan x$

b) $\dfrac{\sin 2x}{1 + \cos 2x} = \tan x$

c) $\sin \dfrac{x}{2} + \cos x = 1$

d) $\dfrac{1 + \sin x}{\cos x} + \dfrac{\cos x}{1 + \sin x} = 4$

e) $\sin 2x < \sin x$

III

Solve $\forall\ x\ \varepsilon\ \Re$ $\tan^{-1} \dfrac{4}{7} + \tan^{-1} x = \dfrac{\pi}{2}$ (10 pts)

Extra Credit ---------- 5 pts ----------

Solve $\forall\ x\ \ 0 \le x < 2\pi$: $4 \sin x \cos x = 1$