Honors Trigonometry

Name _____

Copy original problem.

Per _____   Date _____

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

No Calculators, of course.

Chapter 4 Exam

I   Solve $\forall \; x \; \varepsilon \; [0, 2\pi)$ (i.e. $0 \le x < 2\pi$).

Use proper set notation and include "circle solutions" where appropriate.   (15 pts ea.)

a) $-\sqrt{3}\sin x - \cos x = 1$

b) $\sin 2x \tan^2 2x - \tan 2x = \sin 2x$

c) $\tan\left(\pi + \sin^{-1}\frac{2}{3}\right) = x$

d) $\sec^2 x + \tan x = 1$

e) $\sin^2 x + 5\cos^2 x - 4 = 0$

II   Prove $\cot^{-1} x = \tan^{-1}\left(\frac{1}{x}\right) + \pi$ for $x < 0$ (15 pts)

Include explicit comments on each line explaining or justifying what you've done.

III   For each of the following functions, state the domain and range, draw the graph of the function on a ***properly labeled axis*** and show the "memory device" we use for the function.   (tot 10 pts)

a) $A(x) = \sin^{-1} x$

b) $B(x) = \cos^{-1} x$

c) $C(x) = \tan^{-1} x$

d) $D(x) = \cot^{-1} x$

e) $E(x) = \sec^{-1} x$

f) $F(x) = \csc^{-1} x$

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

Solve for x where x is a degree measure : $\sin^{-1}(\cos x) = 61°$