Honors Analysis
Copy original problem.
Convince *me* that **you** understand the concept!

Name _____

Per _____ Date _____

Chapter 1 Exam

I State the Domain ONLY for each of the following: (5 pts ea)

A) $A(x)=\sqrt{\dfrac{x^2+x-2}{x^2-6x+9}}$ B) $B(x)=\sqrt{\dfrac{x^2-3x}{x^2-4x+3}}$ C) $C(x)=\sqrt{\dfrac{16}{9}}$

D) $D(x)=\dfrac{\sqrt{x^2-2x-2}}{(x+6)^2}$

II Re-define each as a "piece-meal" function. Draw the graph. (10 pts ea)

A) $A(x)=\operatorname{sgn}(x-1)-|x+1|$ B) $B(x)=\left(|x-1|\right)^{\operatorname{sgn}|x|}$ C) $C(x)=\operatorname{sgn}\left(\dfrac{x^2-x-2}{x^2+x-2}\right)$

III Given: $F(x)=\dfrac{2x+1}{x-2}$ and $G(x)=\dfrac{x+2}{x^2+x-2}$. (25 pts tot)

$A(x)=\dfrac{G(x)}{F(x)},\ B(x)=\sqrt{F(x)G(x)},\ C(x)=G(F(x))$

A) Find the domain only for $A(x)$.

B) Find the domain only for $B(x)$.

C) Find the domain only for $C(x)$.

IV Given: $F(x)=\dfrac{3x+1}{x-3}$. (15 pts tot)

A) Find the domain and range. B) Prove F is a 1:1 function.

V Find the coordinates of the point whose ordinate is equal to its abscissa and which is equidistant from (1, 4) and (9, 0). (10 pts)

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

Given the points: (10 , – 2), (4 , 6), and (– 11, – 2). Is the triangle isosceles? Is it a right triangle? Be very clear in your method.