Honors Trigonometry

Name _____

Copy original problem.

Per _____ Date _____

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

No Calculators, please.

Chapter 1 Exam

I   Define Absolute Value.   (5 pts)

II   Solve. Graph solution on a properly labeled numberline. *Think!*   (10 pts ea)

a) $\left| \dfrac{x + 1}{x - 1} \right| \geq 3$ b) $\dfrac{x - 2}{x^2 - 5x + 6} \geq \dfrac{x - 3}{x^2 - 6x + 9}$ c) $\dfrac{1}{x - 2} \geq \dfrac{4x + 1}{(x - 2)(x + 3)}$

III   Rewrite as a piece-wise function. $f(x) = \left| x + 2 \right| - (x - 4) + \left| x - 3 \right|$ (10 pts)

IV   Given: $f(x) = \dfrac{x + 1}{x - 2}$ and $g(x) = \dfrac{x + 1}{(x + 2)(x - 3)}$ (10 pts ea)

a)   Find the **domain** ONLY for $A(x) = g\big(f(x)\big)$.

b)   Find the **domain** ONLY for $B(x) = \sqrt{\dfrac{1}{f(x)} + \dfrac{1}{g(x)}}$.

c)   Find the **formula** ONLY for $C(x) = f\big(g(x)\big)$.

V   For each of the following, list the three items including the given item. (x, y) is the coordinate pair on the unit circle, Z is the arc length in radians, and the Greek letter alpha (α) is the angle in degrees. Draw the circle for each. (**NOTE: You will draw a total of 6 circles!**)   (25 pts total)

A) Find (x, y) and α given: 1) $z = \dfrac{4\pi}{3}$ 2) $z = \dfrac{5\pi}{6}$

B) Find (x, y) and Z given: 1) $\alpha = 135°$ 2) $\alpha = 30°$

C) Find Z and α given: 1) $\left(\dfrac{1}{2}, \dfrac{-\sqrt{3}}{2} \right)$ 2) $\left(\dfrac{-\sqrt{2}}{2}, \dfrac{-\sqrt{2}}{2} \right)$

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

The points $(m, 3)$ and $(1, m)$ lie on a line with slope m .   What is m ?