Name: _____   Date:

Course: _____   Nyack College

College Algebra

Preliminary Assessment #7

Directions: Make sure to show your work.

1. **DETERMINE WHETHER THE EQUATION DEFINES y AS A FUNCTION OF x.**

   a. $y = x^3$

   b. $y = |x|$

   c. $x^2 - 4y^2 = 1$

   d. $y = \dfrac{3x-1}{x+2}$

2. **Find the domain of each function (Note: Use graphing calculator as an aid)**

    a. $y = x^2 + 2$

    b. $y = (3x - 12)^{\frac{1}{2}}$

    c. $f(x) = \dfrac{(x+2)^2}{x^2+1}$

    d. $h(z) = \dfrac{\sqrt{z+3}}{z-2}$

3. Consider the function: $f(x) = \dfrac{x+1}{x+2}$

    a.   Find the domain of $f(x)$

    b.   *Is the point* $\left(1, \dfrac{1}{2}\right)$ *on the graph of* $f(x)$

    c.   *If* $x = 2$, *what is* $f(x)$? *What point is on the graph of* $f(x)$?

    d.   *If* $f(x) = 2$, *what* is x? *What point is on the graph of* $f(x)$?

    e. *What are the* $x - intercepts$ *of the graph of* $f(x)$?

    f. *What point(s) are on the graph* $f(x)$?

4. **Find the average rate of change of $f(x) = -x^3 + 1$**

     a. *From* 0 *to* 2

     b. *From* 1 *to* 3

c. *From* 1 *to* 4

d. *From* (-2) *to* 2