Math 121 Problem Set #3 on Chapter 3 C.S.Davis

Name _____

1. a. Express the volume V of a sphere as a function of its radius r.

   b. If the name of the function in part a is f, write what f(r) is and find the value of f(6).

   c. Express the radius r of a sphere as a function of its volume V.

   d. If the name of the function in part c is g, write what g(V)is and find the value of g(75.3).

2. a. Find the domain of f(x) = $\frac{1}{(x-1)(x+4)}$ by inspection.

   b. Evaluate f(3) and f(a) from part a.

   c. Find the domain and range of g(x) = $\sqrt{(x+3)}+5$ using the graphing calculator. Transfer the graph to this paper.

   d. Evaluate g(6) and g(6000) from part c above.

3. Consider the piecewise defined function $f(x) = \begin{cases} \frac{1}{x-1} & for\ x < 0 \\ \sqrt{x+1} & for\ x \geq 0 \end{cases}$.

   a. Plot the graph of f using the graphing calculator and transfer the graph to this paper.

   b. Evaluate f(3) and f(-3).

4. Consider the function given by $g(x) = x^2 - 3x$.

   a. Manually form a T-table with at least 6 entries and manually sketch the graph of the function g.

5. On the same set of axes,

   a. graph all points where x=-2,

   b. graph all points where $y \geq 4$.

6. Use a graphing calculator to do the following.

   a. Graph the function $y = 9\sqrt{x} + \frac{1}{x}$ in a window that will show its shape well and transfer the graph to this paper.

   b. Find the range of the function given by $y = 9\sqrt{x} + \frac{1}{x}$

   c. Solve the equation $10 = 9\sqrt{x} + \frac{1}{x}$ using the graphing calculator.

7. Consider the following table that gives wind chill at various wind speeds for air temperature 30 degrees F.

W = Wind Speed (mi/hr)	5	10	15	20	25	30	35
T = Temperature Felt (deg F)	27	16	9	4	1	-2	-4

a. Plot a graph of the data.

b. Use linear interpolation to find the wind speed for T = 20 degrees F.

c. Use linear interpolation to find the temperature felt for W = 11 mi/hr.