**Understanding Functions**

1. The relation described by the set of points {(-2,5),(0,5),(3,8),(3,9)} is NOT a function. Explain why.
2. Explain why the graph represents a function.
3. Using interval notation, describe the domain
and range of the function to the right.
4. Graph each function in your calculator, then write the domain and range:
a) $f\left(x\right)=\sqrt{x+2}$

b) $g\left(x\right)=x^{2}-6x+3$

c) $k\left(x\right)=x^{3}-2x^{2}+1$
5. The given function is only drawn for $x\geq 0$. Complete the function for $x<0$ with the following conditions:

6. Suppose you know the point (-2, -10) is on the graph of a function.
a) If the function is ODD, what other point is on the function? \_\_\_\_\_\_\_\_\_\_

b) If the function is EVEN, what other point is on the function? \_\_\_\_\_\_\_\_\_\_

7. Use the graph at the right to answer the following questions:
a) Identify all extrema.

b) Identify the intervals on which the function is
increasing and decreasing.

c) Identify the end behavior.
8. Use the graph at the right to answer the following questions:
a) Identify domain and range.

b) Identify the intervals on which the function is
increasing and decreasing.

c) Identify the end behavior.
9. Use your graphing calculator to graph the function $g\left(x\right)=-x^{3}+2x-3$.
a) Identify all extrema.

b) Identify the intervals on which the function is increasing and decreasing.

c) Identify all x and y intercepts.

d) Identify the end behavior.