**You must show work/explain EVERY question, even the multiple choice questions.**

*y*

*x*

1. Which of the following is the equation to the function to the right?

|  |  |  |  |
| --- | --- | --- | --- |
| 1) | $$y=2^{x}$$ | 3) | $$y=2x+1$$ |
| 2) | $$y=\frac{1}{2}^{x}$$ | 4) | $$y=x^{2}+1$$ |

 1.) \_\_\_\_\_\_\_\_\_

2.) Which graph represents the solution set for  and ?

|  |  |  |  |
| --- | --- | --- | --- |
| 1) |  | 3) |  |
| 2) |  | 4) |  |

 2.) \_\_\_\_\_\_\_\_\_

3.) The expression  is equivalent to

|  |  |  |  |
| --- | --- | --- | --- |
| 1) |  | 3) |  |
| 2) |  | 4) |  |

 3.) \_\_\_\_\_\_\_\_\_

4.) Which equation represents a quadratic function?

|  |  |  |  |
| --- | --- | --- | --- |
| 1) |  | 3) |  |
| 2) |  | 4) |  |

 4.) \_\_\_\_\_\_\_\_\_

5.) If , then solve for *w* in terms of *x* and *y*.

|  |  |  |  |
| --- | --- | --- | --- |
| 1) |  | 3) |  |
| 2) |  | 4) | 5.) \_\_\_\_\_\_\_\_ |

6.) The relation defined by the set of ordered pairs {(0, 2), (-2, 2), (1, 4), (4, 1), (0,-1)} is not a function. Which of the ordered pairs from the relation, when omitted, will make the resulting set a function? Explain your choice. **[2 points]**

7.) Factor completely: $x^{4}-x^{2}-12$ **[3 points]**

8.) Graph and label the function $y=\left|x\right|$ and $y=\left|2x\right|$ on the set of axes below. **[5 points]**

a) Include a table of values for *both* functions.



b) Explain how increasing the coefficient of x affects

the graph of $y=\left|x\right|$.