Name: January 17, 2018

CC Algebra

**Transformations Practice**

1) In each of the boxes below sketch a diagram and write the equation for the named parent functions.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Quadratic** | **Square Root** | **Absolute Value** | **Cubic** | **Cube Root** | **Exponential** |
|  |  |  |  |  |  |

2) For the following state the transformation given the equation.

 a) $y= -(x+2)^{2}$

 b) $y= \frac{1}{2}\sqrt{x}-3$

 c) $y= \left|x-5\right|+1$

3) For the following write the function, $(x)$ , based on the stated transformations.

 (a) Write the function $f(x)$ for a quadratic that shifted left 5 units and moved up 2 units.

(b) Write the function $f(x)$ for an absolute value equation that was reflected over the x-axis, and shifted right 1 unit.

(c) Write the function $f(x)$ for a square root function that was made narrower by a factor of 2 and shifted up 3 units.

(d) Write the function $f(x)$ for a quadratic that opens downward, was made wider by a factor of $\frac{1}{4}$, shifted down 6 units and shifted left 2 units.

4) For the following graph and then state the domain and range.



Domain: Domain: Domain:

Range: Range: Range:

 5) Create a table of Values and Draw the graph of  on the set of axes below.

 (b) State the Domain & Range of the function

Domain:

 Range:

 6) How does the graph of  compare to the graph of ?

|  |  |
| --- | --- |
| A) | The graph of  is wider than the graph of , and its vertex is moved to the left 2 units and up 1 unit. |
| B) | The graph of  is narrower than the graph of , and its vertex is moved to the right 2 units and up 1 unit. |
| C) | The graph of  is narrower than the graph of , and its vertex is moved to the left 2 units and up 1 unit. |
| D) | The graph of  is wider than the graph of , and its vertex is moved to the right 2 units and up 1 unit. |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Which 7) Which equation is represented by the graph to the right.

|  |  |
| --- | --- |
| A) |  |
| B) |  |
| C) |  |
| D) |  |

 |  |  |

8) Describe the transformation that would produce the graph of the function g from the graph of function f.

1. *f(x)* = 2x; *g(x)* = 2x + 1 + 5
2. *f(x)* = |x|; *g(x)* = -|x – 3| + 4

9) Describe the relationship between the given functions f and g in terms of vertical and horizontal stretches and shrinkages:

1. *f(x)* = |x| and $g\left(x\right)=\left|\frac{1}{2}x\right|$
2. $f(x)=\sqrt{x}$ and $g\left(x\right)=3\sqrt{x}$

10) Graph $g\left(x\right)=-x^{3}$ and explain how it is different from the parent function $h\left(x\right)=x^{3}$

11) Restricted domain & range questions:

1. Which domain would be the most appropriate set to use for a function that predicts the number of household online-devices in terms of the number of people in the household?

A) rational numbers B) irrational numbers

C) whole numbers D) integers

1. A store sells self-serve frozen yogurt sundaes. The function C(*w*) represents the cost, in dollars, of a sundae weighing *w* ounces. An appropriate domain for the function would be

A) nonnegative rational numbers B) nonnegative integers

C) rational numbers D) integers

1. A construction company uses the function f(*p*), where *p* is the number of people working on a project, to model the amount of money it spends to complete a project. A reasonable domain for this function would be

A) both positive and negative integers B) positive real numbers

C) positive integers D) both positive and negative real numbers