Name:

Date:

School:

Facilitator:

3.03 Types of Functions

Total Points: 20

**Examine all 10 graphs. For each, identify the function represented as:**

* **linear,**
* **quadratic,**
* **exponential,**
* **piecewise,**
* **step,**
* **absolute value, or**
* **polynomial.**

**If the graph is not a function, write “Not a function”.**

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| 1. | A graph with three parts.  The first is a parabola, decreasing from the left, turning at the origin (0,0), then increasing and stopping at the open point (2,4).  The second is a single point plotted at (2,6).  The third is a line segment starting at an open point (2,8) and descending to the closed point (6,4) |       |
| 2. | A graph showing a series of nine horizontal line segments, each about 1 unit long, with closed points on the left and open points on the right.  |       |
| 3. | Graph of a straight line passing through the points (negative 2, negative 4), (negative 1, negative 2), (0,0), (1,2), and (2,4). |       |
| 4. | Graph of an curve, increasing from left to right, passing through the points (0,1) and (1,e). |       |
| 5. | A graph with two parts.  The first is a parabola, descending from the left passing through the point (negative 1, 0), turning at the point (0, negative 1), increasing and stopping at the open point (1,0).  The other part is a straight line starting at the open point (1,1) and sloping upward passing through the points (2,2) and (3,3).  |       |
| 6. | Graph on an X-Y axis where the negative values of y are above the x-axis and the positive values of y are below the x-axis. The graph is a curve going from left to right passing near the point (negative 9, negative 3 and three fourths), turning at the point (3, negative 2), going from right to left passing through the point (0, negative 1), turning at the point (negative 3, 0) and then going from left to right passing through the point (0,1) |       |
| 7. | Graph of a curve decreasing from left to right passing through the points (negative 2, 4), (negative 1, 2), and (0,1) |       |
| 8. | Graph of a parabola opening upward passing through the points (negative 2,4),  (negative 1, 1), (0,0), (1,1), and (2,4) |       |
| 9. | V-shaped graph decreasing from the left passing through points (negative 4, 4), (negative 2,2) and (0,0) then increasing passing through points (2,2) and (4,4) |       |
| 10. | Graph of a parabola opening downward with a maximum point at (1,3) passing through points (negative 1, negative 1), (0,2), (2,2), and (3, negative 1) |       |

**For #11-14, state what type of function each basic equation represents (linear, quadratic, exponential, piecewise, step, absolute value, or polynomial).**

1. $f(x) = x^{2} $

Type of function:

1. $f(x) = b^{x} , where b is any positive number not equal to 1.$

Type of function:

1. $f\left(x\right)=|x|$

Type of function:

1. $f(x) = x $

Type of function:

**For #15-20, state what type of function each equation represents (linear, quadratic, exponential, piecewise, step, absolute value, or polynomial).**

1. $f(x) = 2x + 3$

Type of function:

1. $f(x) = 2|x| + 5$

Type of function:

1. $f(x) = 3x^{2} + 5x + 9$

Type of function:

1. $f(x) = 4^{x}$

Type of function:

1. $f\left(x\right)=x^{4}+2x^{3}-3x^{2} -2x + 1$

Type of function:

1. $f(x) = \left\{\begin{array}{c}-\frac{3}{4}x+2, -4<x<2\\x+5, 2\leq x<10\end{array}\right.$

Type of function: