**Advanced Algebra Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Hr\_\_\_\_\_\_\_**

**Intro to Rates of Change, Domain, Range, and Parent Functions**



1.

a. When is the soda consumed most rapidly?

b. Domain:

 Range:

2. Sketch a graph to match each description:

1. increasing throughout, first slowly and then at a faster rate
2. decreasing slowly, then more and more rapidly, then suddenly becoming constant
3. alternately increasing and decreasing without any sudden changes in rate

3. For each graph, write a description like exercise 2.



Description: Description: Description:

4. Car A and Car B are at the starting line of a race. At the green light, they both accelerate to 60 mi/h in 1 min. The graph at right represents their velocities in relation to time. After 1 minute, which car will be in the lead? Explain your reasoning using the phrase “rate of change.”

 **Complete each table. Plot the points and create a curve. Describe the curve and state the domain and range.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *x* | -2 | -1 | 0 | 1 | 2 |
| *y* |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *x* | 0 | 1 | 4 | 6 | 9 |
| *y* |  |  |  |  |  |

Description:

Domain: Range:

Description:

Domain: Range:

5. Linear:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *x* | -2 | -1 | 0 | 1 | 2 |
| *y* |  |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *x* | -8 | -1 | 0 | 1 | 8 |
| *y* |  |  |  |  |  |

Description:

Domain: Range:

Description:

Domain: Range:

6. Quadratic:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *x* | -2 | -1 | 0 | 1 | 2 |
| *y* |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *x* | -2 | -1 | 0 |  | 1 | 2 |
| *y* |  |  |  |  |  |  |

Description:

Domain: Range:

Description:

Domain: Range:

7. Cubic:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *x* | -2 | -1 | 0 | 1 | 2 |
| *y* |  |  |  |  |  |

8. Absolute Value:

Description:

Domain: Range:

9. Square Root:

10. Cubic Root:

11. Reciprocal of Linear:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *x* | -2 | -1 | 0 |  | 1 | 2 |
| *y* |  |  |  |  |  |  |

12. Reciprocal of Quadratic:

Description:

Domain: Range: