Families of Functions Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Square Root

Hour\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_

Complete the table then graph each function below:

1. **PARENT FUNCTION: f(x) =**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -1 | 0 | 1 | 4 | 9 | 16 |
| y |  |  |  |  |  |  |

1. Is it a function?
2. Domain? Range?
3. End Behavior
4. Critical Points (minimums, maximums, asymptotes)
5. X & Y Intercepts
6. Intervals of Increasing & Decreasing
7. f(x) =

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -1 | 0 | 1 | 4 | 9 | 16 |
| y |  |  |  |  |  |  |

How is this Square Root different from #1?

1. f(x) =

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -1 | 0 | 1 | 4 | 9 | 16 |
| y |  |  |  |  |  |  |

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|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -1 | 0 | 1 | 4 | 9 | 16 |
| y |  |  |  |  |  |  |

How is this Square Root different from #1

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|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -1 | 0 | 1 | 4 | 9 | 16 |
| y |  |  |  |  |  |  |

How is this Square Root different from #1?

**CONCLUSIONS:**

1. Suppose the Square Root functions can be written as f(x) =. Based on your answers for questions 2-9; how does k affect the graph of the parent function

f(x) =

1. Suppose the Square Root functions can be written as f(x) =. Based on your answers for questions 2-9; how does k affect the table of the parent function

f(x) =

1. Predict what the table and graph would look like for the function: f(x) =
2. Predict what the table and graph would look like for the function: f(x) =
3. Predict the equation of each graph below.





Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. f(x) =

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -4 | -3 | 0 | 1 | 6 | 96 |
| y |  |  |  |  |  |  |

How is this Square Root different from #1?

1. f(x) =

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -1 | 0 | 2 | 3 | 12 | 102 |
| y |  |  |  |  |  |  |

How is this Square Root different from #1?

1. f(x) =

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | -8 | -7 | -6 | -1 | 0 | 3 | 93 |
| y |  |  |  |  |  |  |  |

How is this Square Root different from #1?

1. f(x) =

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | 0 | 1 | 5 | 9 | 14 | 21 | 30 |
| y |  |  |  |  |  |  |  |

How is this Square Root different from #1?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**CONCLUSIONS:**

1. Suppose Square Root functions can be written as f(x) = Based on your answers for questions 2-9; how does h affect the graph of the parent function

f(x) =

1. Suppose Square Root functions can be written as f(x) = . Based on your answers for questions 2-9; how does h affect the table of the parent function

f(x) =

1. Predict what the table and graph would look like for the function: f(x) =
2. Predict what the table and graph would look like for the function: f(x) =
3. Predict the equation of each graph below.





Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

f(x) = -

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -1 | 1 | 5 | 10 | 50 | 100 |
| y |  |  |  |  |  |  |

How is this Square Root different from #1?

3. f(x) = -2

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -1 | 1 | 5 | 10 | 50 | 100 |
| y |  |  |  |  |  |  |

How is this Square Root different from #1?

1. f(x) = -½

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -1 | 1 | 5 | 10 | 50 | 100 |
| y |  |  |  |  |  |  |

How is this Square Root different from #1?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. f(x) = -3

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -1 | 1 | 5 | 10 | 50 | 100 |
| y |  |  |  |  |  |  |

How is this Square Root different from #1?

**CONCLUSIONS:**

1. Suppose the Square Root functions can be written as f(x) = a. Based on your answers for questions 2-9; how does a affect the graph and table of the parent function f(x) = when a is NEGATIVE?
2. Suppose the Square Root functions can be written as f(x) = a. Based on your answers for questions 2-9; how does a affect the graph of the parent function

f(x) = when a > 1?

1. Suppose the Square Root functions can be written as f(x) = a. Based on your answers for questions 2-9; how does a affect the table of the parent function

f(x) = when a< 0?

1. Predict what the table and graph would look like for the function: f(x) =-4
2. Predict what the table and graph would look like for the function: f(x) = 2/3

f(x) = -

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -1 | 1 | 5 | 10 | 50 | 100 |
| y |  |  |  |  |  |  |

How is this Square Root different from #1?

3. f(x) = -3

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -1 | 1 | 5 | 10 | 50 | 100 |
| y |  |  |  |  |  |  |

How is this Square Root different from #1?

1. f(x) = -1/3

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -1 | 1 | 5 | 10 | 50 | 100 |
| y |  |  |  |  |  |  |

How is this Square Root different from #1?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. f(x) = -4

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| x | -1 | 1 | 5 | 10 | 50 | 100 |
| y |  |  |  |  |  |  |

How is this Square Root different from #1?

**CONCLUSIONS:**

1. Suppose the Square Root can be written as f(x) = a. Based on your answers for questions 2-9; how does a affect the graph and table of the parent function f(x) = when a is NEGATIVE?
2. Suppose the Square Root functions can be written as f(x) = a. Based on your answers for questions 2-9; how does a affect the graph of the parent function

f(x) = when a > 1?

1. Suppose the Square Root functions can be written as f(x) = a. Based on your answers for questions 2-9; how does a affect the table of the parent function

f(x) = when a< 0?

1. Predict what the table and graph would look like for the function: f(x) =-4
2. Predict what the table and graph would look like for the function: f(x) = 2/3

**SQUARE ROOT FUNCTION CONCLUSIONS:**

1. The general form of a Square Root function is; f(x) = a

1. What are the effects of a on the table and graph?
2. What are the effects of h on the table and graph?
3. What are the effects of k on the table and graph?

Graph the following Square Root then complete the table:

1. f(x) =

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x |  |  |  |  |  |  |  |
| y |  |  |  |  |  |  |  |

1. f(x) = -

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x |  |  |  |  |  |  |  |
| y |  |  |  |  |  |  |  |

1. f(x) = -2

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x |  |  |  |  |  |  |  |
| y |  |  |  |  |  |  |  |

1. Write a rule for a Square Root that is translated 4 units left, and 2 units down.
2. Write a rule for a Square Root function that is reflected over the x-axis and is translated 3 units right and 8 units up.
3. Write a rule for a Square Root function that is stretched by a factor of 3 and is translated right 5 units.
4. Write a rule for a Square Root function that is shrunk by a factor of ½, reflected over the x-axis, and translated 4 units down and 3 units left.
5. Describe all translations of the parent function used to obtain the function:

f(x) =

1. Describe all translations of the parent function used to obtain the function:

f(x) =

1. Describe all translations of the parent function used to obtain the function:

f(x) = -