Parent functions are the **simplest** functions in a family (a group of functions with similar characterics.)

**1. Linear** $f\left(x\right)=x$

Domain\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Range\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Special Features:**

|  |  |  |  |  |  |  |  |  |  |  |  |
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| --- | --- |
| **x** | **f(x)** |
| -3 |  |
| -2 |  |
| -1 |  |
| 0 |  |
| 1 |  |
| 2 |  |
| 3 |  |

**2. Quadratic** $f\left(x\right)=x^{2}$

Domain\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Range\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Special Features:**

|  |  |
| --- | --- |
| **x** | **f(x)** |
| -3 |  |
| -2 |  |
| -1 |  |
| 0 |  |
| 1 |  |
| 2 |  |
| 3 |  |

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**3. Root**$f\left(x\right)=\sqrt{x}$

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Domain\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Range\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Special Features:**

|  |  |
| --- | --- |
| **x** | **f(x)** |
| 0 |  |
| 1 |  |
| 4 |  |
| 9 |  |

**4. Exponential** $f\left(x\right)=2^{x}$

Domain\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Range\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

An **asymptote** is a line that a graph gets closer and closer to, but never actually touches.

This graph has one asymptote. What is the equation of it?

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|  |  |
| --- | --- |
| **x** | **f(x)** |
| -3 |  |
| -2 |  |
| -1 |  |
| 0 |  |
| 1 |  |
| 2 |  |
| 3 |  |

**5. Absolute Value** $f\left(x\right)=|x|$

The absolute value sign, **,** means to take the value of the number and drop the negative signs. For example, the absolute value of –5 which is written as ****is 5.

Domain\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Range\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- |
| **x** | **f(x)** |
| -3 |  |
| -2 |  |
| -1 |  |
| 0 |  |
| 1 |  |
| 2 |  |
| 3 |  |

**6. Reciprocal** $f\left(x\right)=\frac{1}{x}$

**\*Leave your y values**

**as fractions**

|  |  |  |  |
| --- | --- | --- | --- |
| **x** | **f(x)** | **x** | **f(x)** |
| -3 |  | 3 |  |
| -2 |  | 2 |  |
| -1 |  | 1 |  |
|  |  |  |  |
|  |  |  |  |

Domain\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Range\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

This graph has two asymptotes. What are their equations?

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