**where \_\_\_\_\_\_ is the parent function.**

|  |  |  |
| --- | --- | --- |
| Transformation: | Will appear: | Description: |
| Reflection |  | Vertical Reflection across the \_\_\_\_\_\_\_ |
|  | Horizontal Reflection across the \_\_\_\_\_\_\_ |
| Vertical Shift |  | Vertical Shift \_\_\_\_\_ by \_\_\_\_\_\_\_\_. |
|  | Vertical Shift \_\_\_\_\_ by \_\_\_\_\_\_\_\_. |
| Horizontal Shift |  | Horizontal Shift \_\_\_\_\_\_\_ by \_\_\_\_. |
|  | Horizontal Shift \_\_\_\_\_\_\_\_\_ by \_\_\_\_. |

Example # 1: Identify the transformations for the functions below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | | | |
| **Parent Function:** | **Vertical Reflection?** | **Horizontal Reflection?** | **Horizontal Shift: Direction? How many?** | **Vertical Shift: Direction? How many?** |
|  |  |  |  |  |

Example # 2: Identify the transformations for the functions below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | | | |
| **Parent Function:** | **Vertical Reflection?** | **Horizontal Reflection?** | **Horizontal Shift: Direction? How many?** | **Vertical Shift: Direction? How many?** |
|  |  |  |  |  |

**Graphing Exponential Functions:**

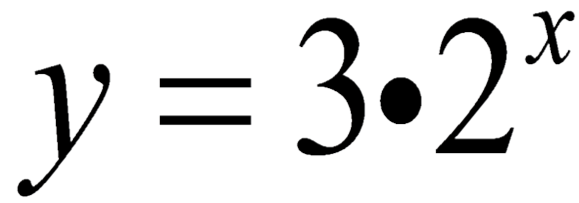
**Step 1: Create the points (0, \_) and (1, \_\_).**

**Step 2: State and graph the asymptote (y = \_).**

**Step 3: Plot the points from Step 1 and move based on the transformations.**

**Step 4: Connect the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with a smooth curve.**

**Example # 3: Graph the function using transformations.**

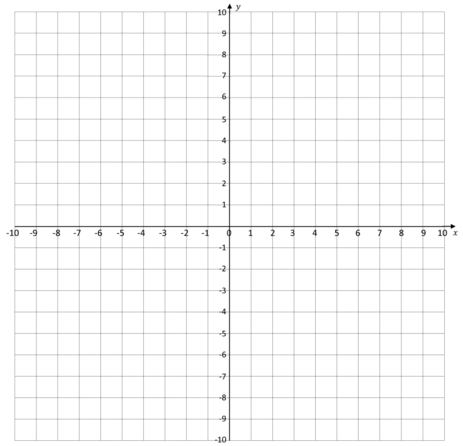


**Step 1: Create the points (0, a) and (1, ab).**

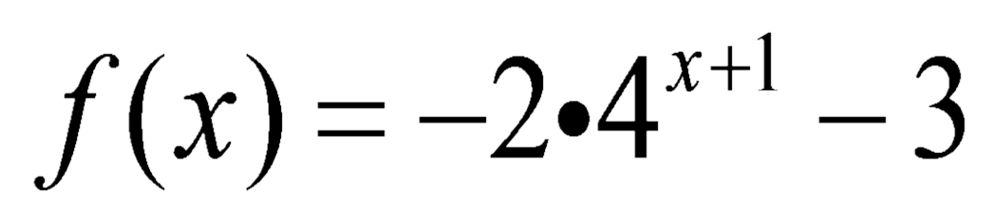
**Step 2: State & graph the asymptote (y = k).**

**Step 3: Plot the points from Step 1 and move based on the transformations.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Vertical Reflection?** | **Horizontal Reflection?** | **Horizontal Shift: Direction? How many?** | **Vertical Shift: Direction? How many?** |
|  |  |  |  |



**Example # 4: Graph the function using transformations.**



**Step 1: Create the points (0, a) and (1, ab).**

**Step 2: State & graph the asymptote (y = k).**

**Step 3: Plot the points from Step 1 and move based on the transformations.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Vertical Reflection?** | **Horizontal Reflection?** | **Horizontal Shift: Direction? How many?** | **Vertical Shift: Direction? How many?** |
|  |  |  |  |

