Coordinate Algebra

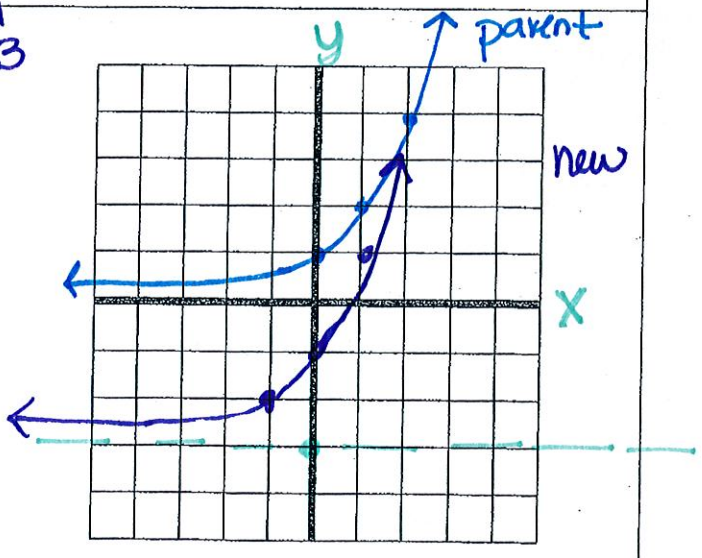
Name:_____

Date:_____ Class Period:____

**Graphing Exponential Functions Notes**

| | Exponential Functions |
|---|---|
| Form | $a(b)^{x-h}+k$ |
| Key Features | $b^x$ → parent function<br>$b>1$ Growth<br>$0<b<1$ Decay<br>K → Asymptote<br>$y=$ "k" |
| Steps | 1. Identify our base (D vs G) and Asymptote<br>2. Graph Asymptote $y=$___ w/ a dotted line<br>3. Identify h value<br>4. Take opposite of h and place in the middle of a table<br>5. Pick two values above and below h → Create table<br>6. plot points and create a curve |
| Example | $g(x)=2^{x+1}-3$ Left 1, Down 3<br>parent → Growth<br>Asym: $y=-3$ |

| x | y |
|---|---|
| -3 | -2.75 |
| -2 | -2.5 |
| -1 | -2 |
| 0 | -1 |
| 1 | 1 |



Name: _____ Date: _____

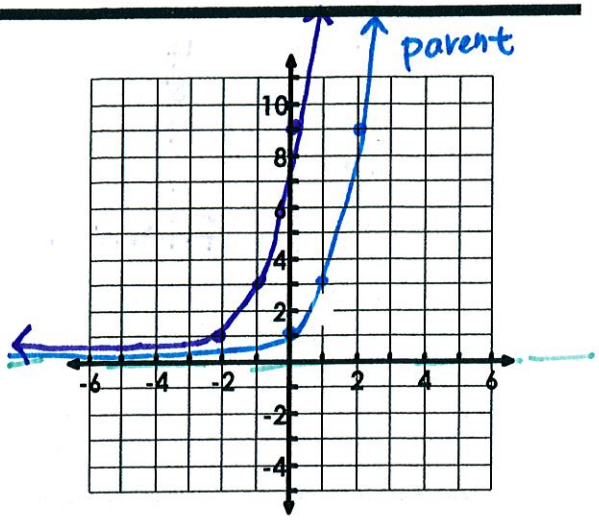
# Graphing Transformations to Exponential Functions

## Graphing Exponential Functions

$$y = a(b)^{x-h} + k$$

1. $y = 3^{x+2}$

| X | $y = 3^x$ | $y = 3^{x+2}$ |
|---|---|---|
| -4 | | — |
| -3 | | — |
| -2 | | 1 |
| -1 | | 3 |
| 0 | 1 | 9 |
| 1 | 3 | 27 |
| 2 | 9 | 81 |
| 3 | 27 | 243 |
| 4 | 81 | 729 |



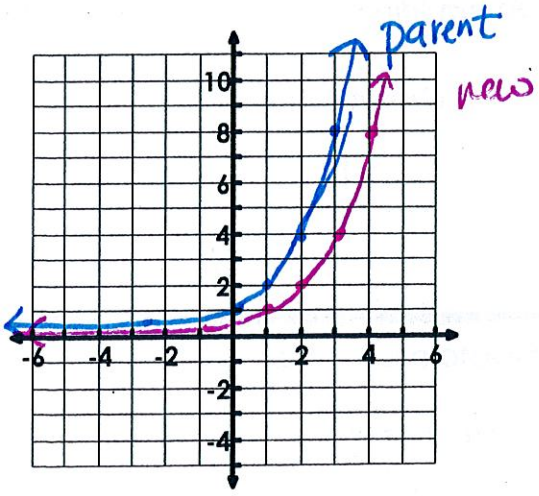

Transformations: Left 2

Domain: _____ Range: _____

Asymptote: _____ Increasing/ Decreasing

2. $y = 2^{x-1}$

| X | $y = 2^x$ | $y = 2^{x-1}$ |
|---|---|---|
| -4 | | |
| -3 | | |
| -2 | | |
| -1 | | |
| 0 | 1 | — |
| 1 | 2 | 1 |
| 2 | 4 | 2 |
| 3 | 8 | 4 |
| 4 | 16 | 16 |




Transformations: Right 1

Domain: _____ Range: _____

Asymptote: _____ Increasing/ Decreasing