

(A) Lesson Objectives:

- a. Understand the basic appearance and features of the graph of exponential relations $y = ab^x + d$
- b. Make predictions/extrapolations through graphic analysis
- c. Understand the basic connection between the parameters in an equation and its appearance in a graph

(B) Graphs of Exponential Functions – REVIEW- The BASIC graph of $y = ab^x + d$

- a. Sketch the graph the equation $y = 2^x$ and fill in the included table as well.

$a =$ $b =$ $d =$

GRAPH:

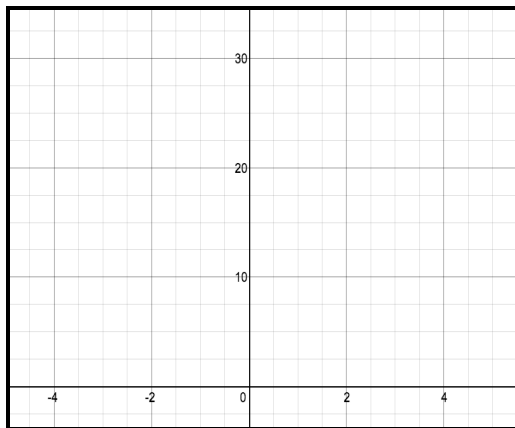


TABLE:

X	0	1	2	3	4
Y					

X	0	-1	-2	-3	-4
Y					

Domain:

Range:

y-intercept:

asymptote:

(C) Graphs of Exponential Functions - Changing the values of a and d in $y = ab^x + d$

IN the exercises that follow → WITHOUT using your TI-84, graph the following equations and then compare them to the table and graph of our “parent function” of $y = 2^x$.

Lesson 6 DAY 2: Graphs of Exponential Relations – HW | Unit 4 – Exponential Relations

Equation to graph: $y = -1 + \frac{1}{4}(2)^x$

$a =$ $b =$ $d =$

table:

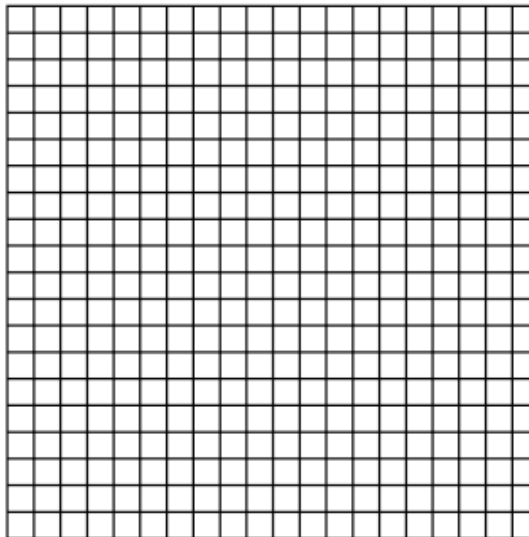
x	-3	-2	-1	0	1	2	3
y							

Domain:

Range:

y-intercept:

asymptote:



Equation to graph: $y = 2^{x+3} - 5$

$a =$ $b =$ $d =$

table: :

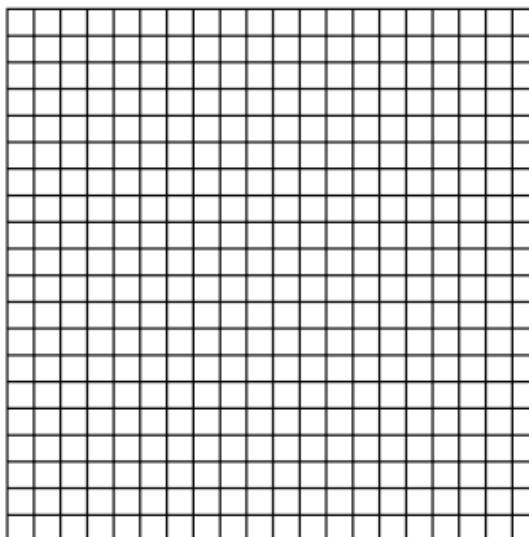
x	-3	-2	-1	0	1	2	3
y							

Domain:

Range:

y-intercept:

asymptote:



Lesson 6 DAY 2: Graphs of Exponential Relations – HW | Unit 4 – Exponential Relations

Equation to graph: $y = (2)^{-x} - 2$

$a =$ $b =$ $d =$

table: :

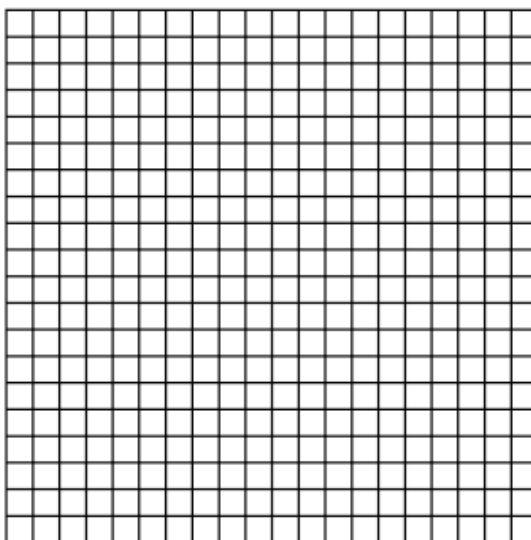
x	-3	-2	-1	0	1	2	3
y							

Domain:

Range:

y-intercept:

asymptote:



Equation to graph: $y = 2(2)^x + 3$

$a =$ $b =$ $d =$

table:

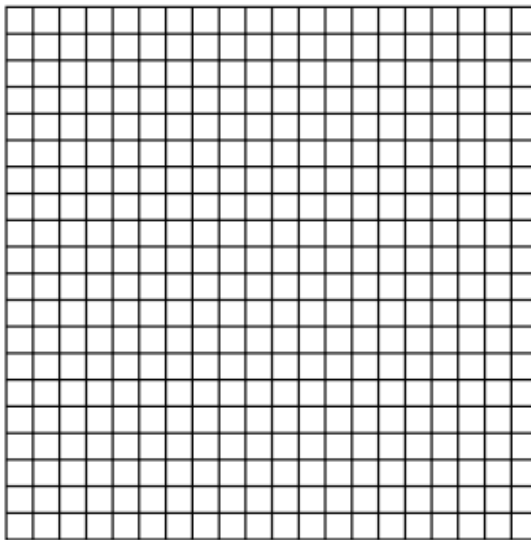
x	-3	-2	-1	0	1	2	3
y							

Domain:

Range:

y-intercept:

asymptote:



Lesson 6 DAY 2: Graphs of Exponential Relations – HW | Unit 4 – Exponential Relations

Equation to graph: $y = 2^{x-2} - 3$

$a =$ $b =$ $d =$

table :

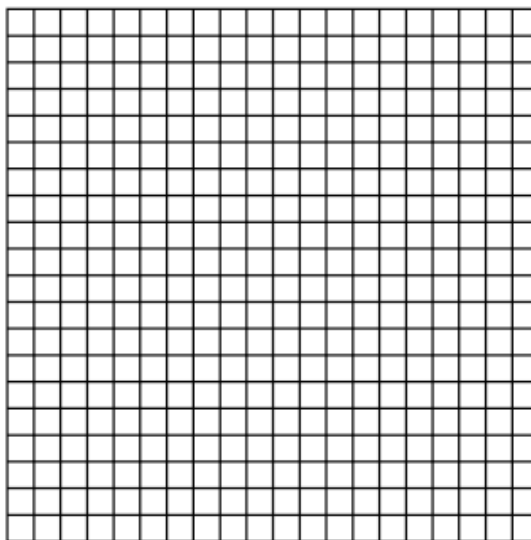
x	-3	-2	-1	0	1	2	3
y							

Domain:

Range:

y-intercept:

asymptote:



Equation to graph: $y = \frac{1}{2}(2)^x - 4$

$a =$ $b =$ $d =$

table :

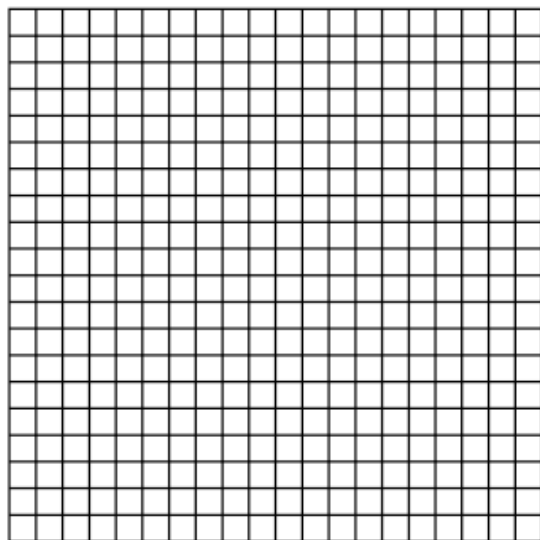
x	-3	-2	-1	0	1	2	3
y							

Domain:

Range:

y-intercept:

asymptote:



Lesson 6 DAY 2: Graphs of Exponential Relations – HW | Unit 4 – Exponential Relations

More Graphs of Exponential Functions - Changing the values of a and d in $y = ab^x + d$

AFTER filling in the values in the tables, use your TI-84 to graph the given equations and then compare them to the table and graph of $y = 2^x$.

<p>Equation to graph: $y = \left(\frac{1}{2}\right)^x + 1$</p> <p>table:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>-3</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </table>	-3	-2	-1	0	1	2	3								<p>Equation to graph: $y = \left(\frac{1}{2}\right)^x - 3$</p> <p>table:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>-3</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </table>	-3	-2	-1	0	1	2	3							
-3	-2	-1	0	1	2	3																							
-3	-2	-1	0	1	2	3																							
<p>Equation to graph: $y = \left(\frac{1}{2}\right)^{-x} - 4$</p> <p>table:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>-3</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </table>	-3	-2	-1	0	1	2	3								<p>Equation to graph: $y = 2 - \frac{1}{4}\left(\frac{1}{2}\right)^x$</p> <p>table:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>-3</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </table>	-3	-2	-1	0	1	2	3							
-3	-2	-1	0	1	2	3																							
-3	-2	-1	0	1	2	3																							
<p>Equation to graph: $y = 5 - \left(\frac{1}{2}\right)^x$</p> <p>table:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>-3</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </table>	-3	-2	-1	0	1	2	3								<p>Equation to graph: $y = \frac{3}{2} + \frac{1}{2}\left(\frac{1}{2}\right)^x$</p> <p>Data table:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <td>-3</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </table>	-3	-2	-1	0	1	2	3							
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-3	-2	-1	0	1	2	3																							

(D) Consolidation of Concepts

Without a graphing calculator, use your understanding of the concepts that you learned in order to prepare a table and

a graph of the following equations: **1.** $y = 2(3)^x - 1$ **2.** $y = -2\left(\frac{1}{3}\right)^x + 4$

table:

x	-3	-2	-1	0	1	2	3
y							

Domain:

Range:

y-intercept:

asymptote:

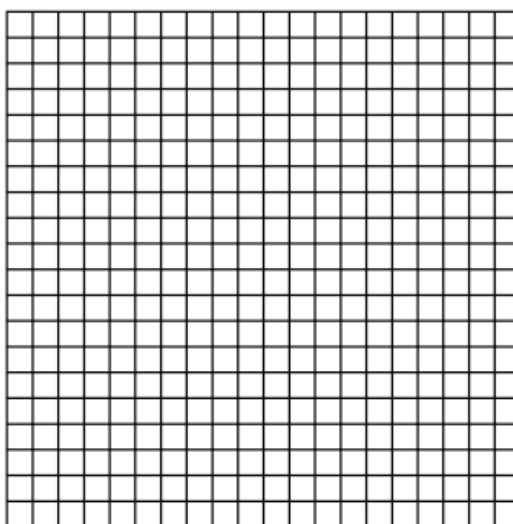


table:

x	-3	-2	-1	0	1	2	3
y							

Domain:

Range:

y-intercept:

asymptote:

