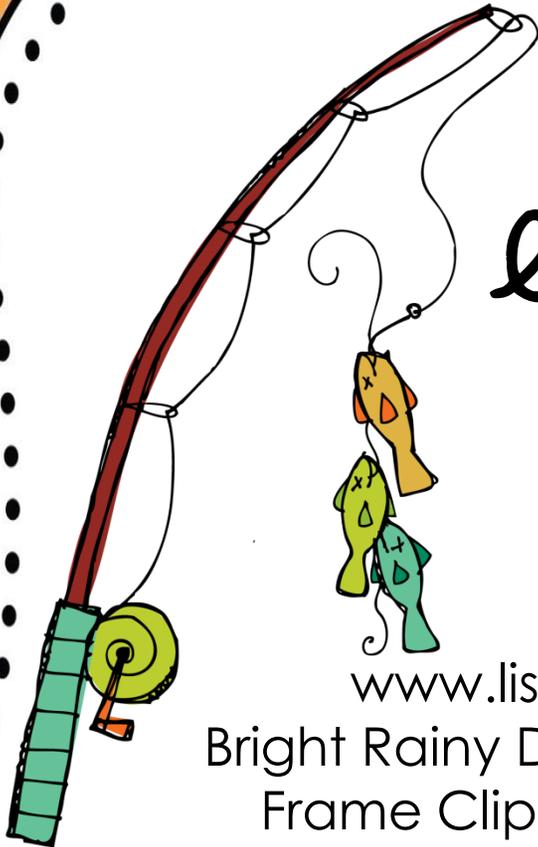


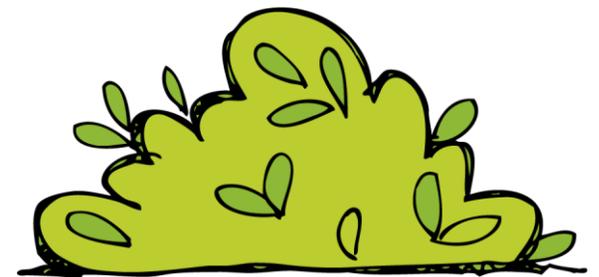
exponential functions **MATCHING GAME**



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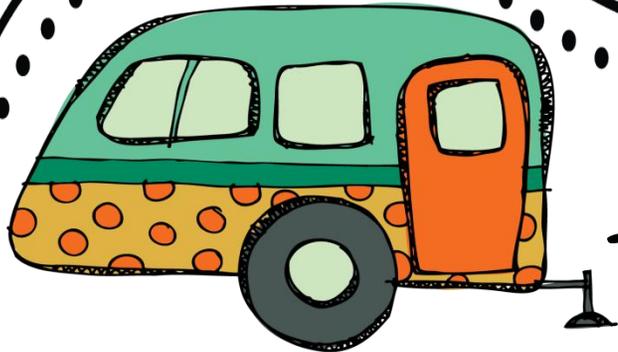
Bright Rainy Day Clip Art by KPM Doodles

Frame Clip Art by Pixels & Ice Cream



CCSS F.IF.7e

CCSS F.LE.2



exponential functions

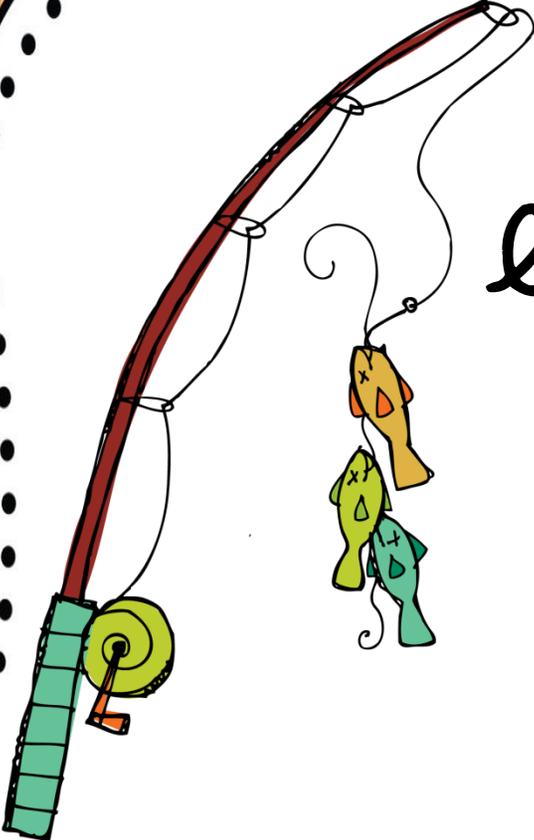
MATCHING GAME DETAILS

Materials: deck of function cards

Objective: to match each exponential function rule with its table of values, graph, and description

Procedure for 2-4 Players:

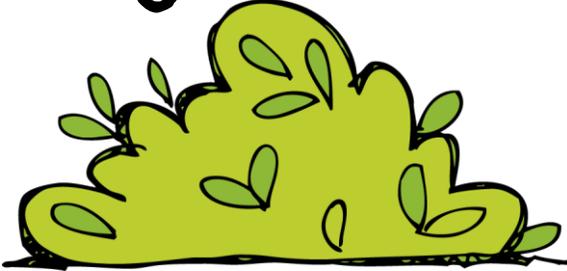
- Deal each player 7 cards; stack remaining cards in the “fish pond.”
- Choose a player to start the game. Determine what cards you plan to collect into groups of two, three, or four (depending on which sets are included in the deck). This is the goal of the game and you win by having the most sets of matches. Ask any other player for a specific card such as an exponential function graph with x-axis reflection. If this person has a reflected graph, he must hand it over to you. Then you get to go again.
- Go Fish! If the player does not have your requested card, he can tell you to “Go Fish!” This means you get to choose a card from the “fish pond” pile. If you draw the card you were requesting, then you get to go again. If you did not receive the card you were looking for, your turn is ended and play moves to the left. Place your groups of matches on the table once you have a set.



exponential functions

MATCHING GAME

parent function: $y=2^x$



numerically



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

numerically



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

numerically



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

numerically



x	y
-1	1/2
0	1
1	2
2	4

numerically

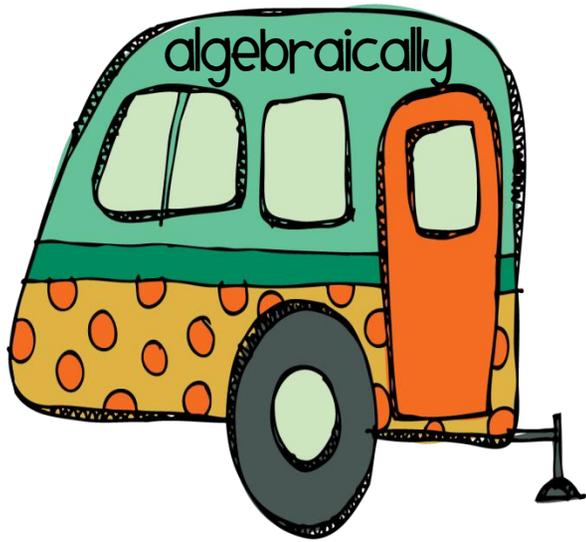


x	y
-1	-1/2
0	-1
1	-2
2	-4

numerically



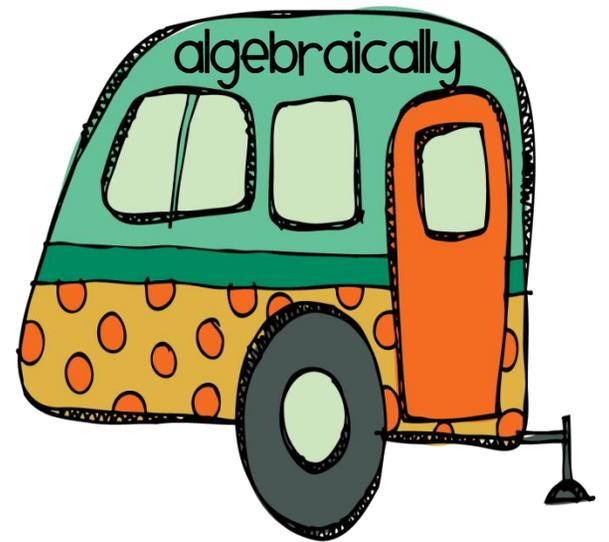
x	y
-1	3/2
0	2
1	3
2	5



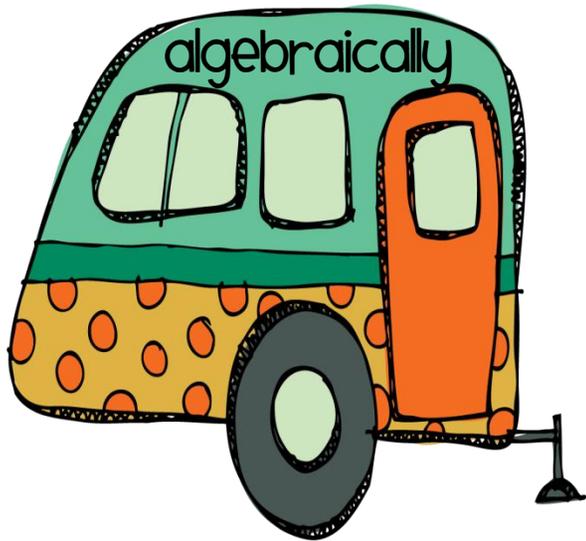
$$y=2^x-2$$



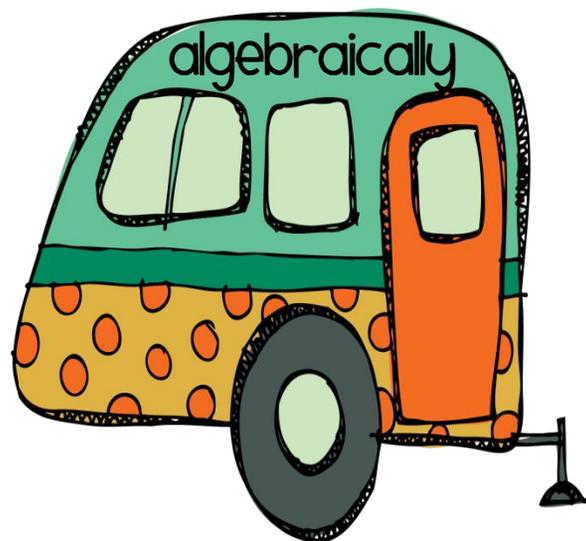
$$y=2^x-1$$



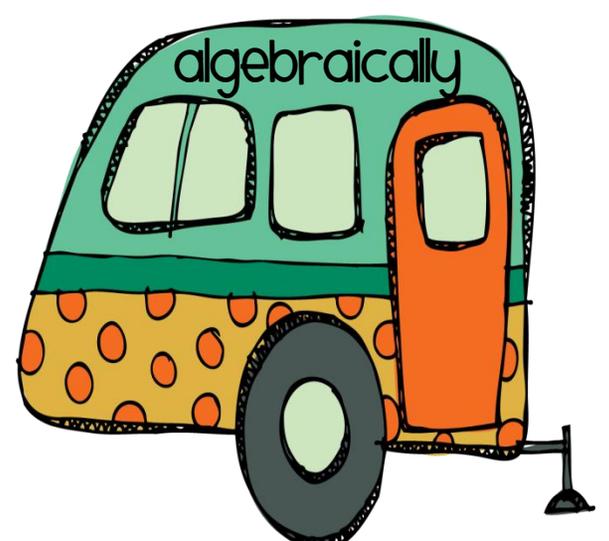
$$y=-2^x+1$$



$$y=2^x$$

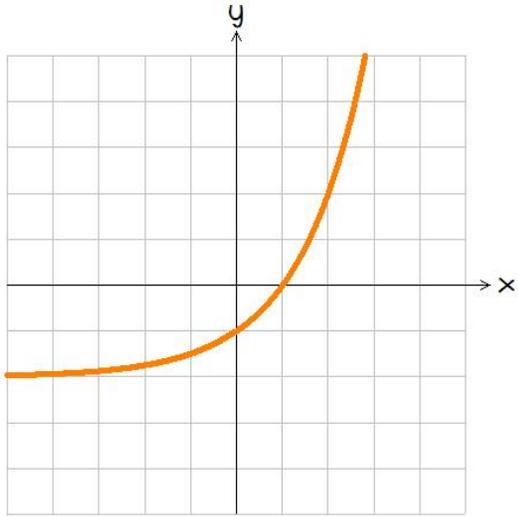


$$y=-2^x$$

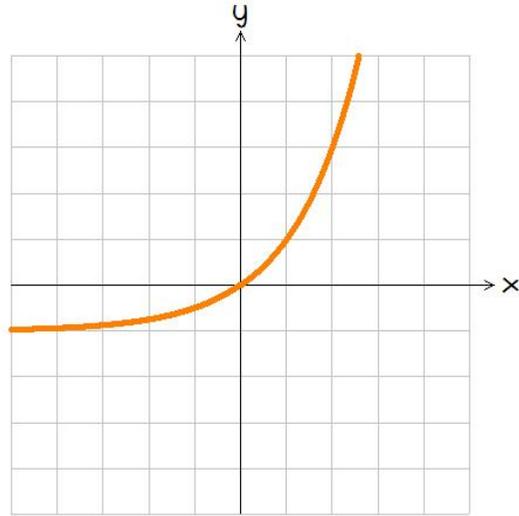


$$y=2^x+1$$

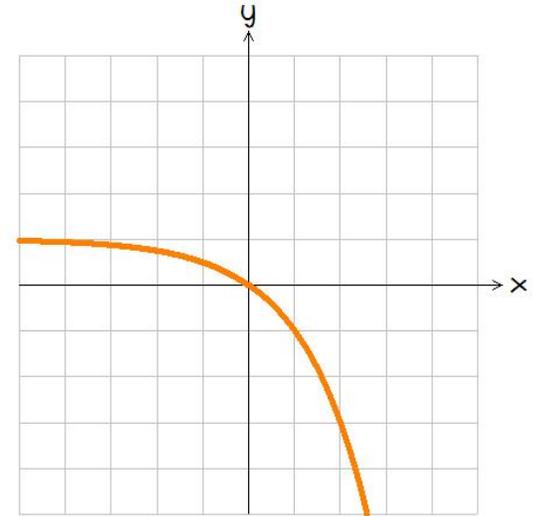
graphically



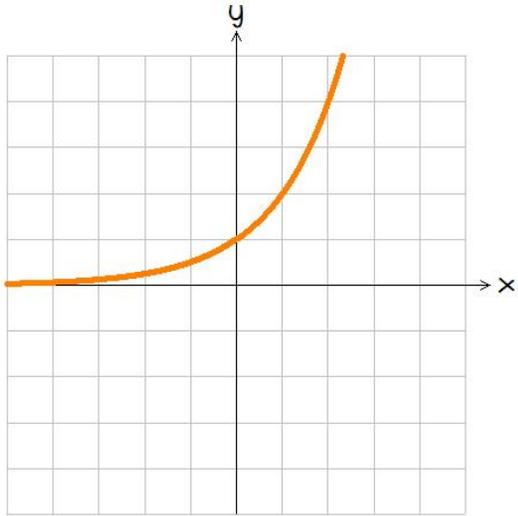
graphically



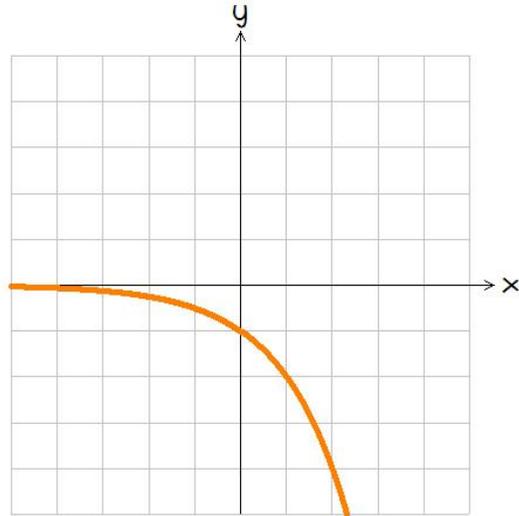
graphically



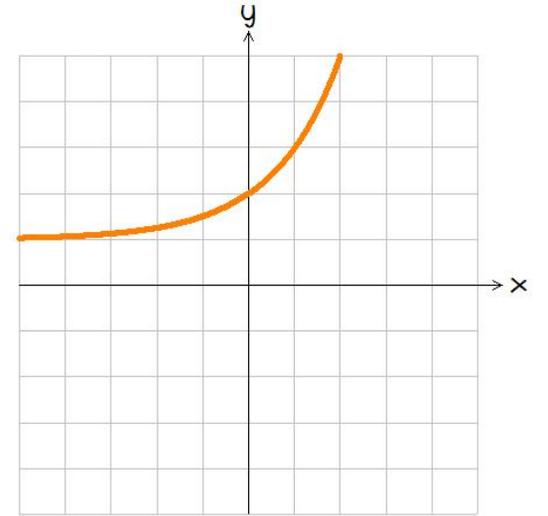
graphically

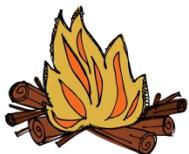


graphically

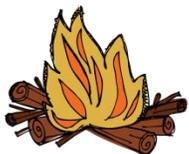


graphically

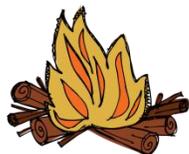




y-int. (0, -1)



growth factor: 2



y-int. (0, 0)



growth factor: 2



x-axis reflection



y-int. (0, 0)



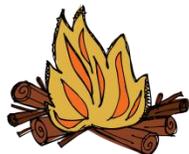
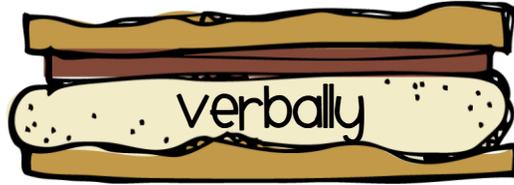
growth factor: 2



y-int. (0, 1)



growth factor: 2



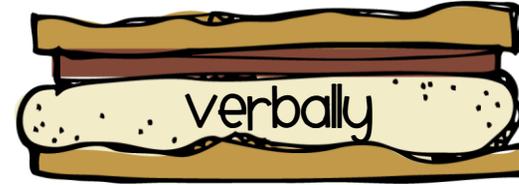
x-axis reflection



y-int. (0, -1)



growth factor: 2



y-int. (0, 2)



growth factor: 2

numerically



x	y
-1	-5/2
0	-2
1	-1
2	1

numerically



x	y
-1	-7/2
0	-3
1	-2
2	0

numerically



x	y
-1	-9/2
0	-4
1	-3
2	-1

numerically



x	y
-1	-3/2
0	-2
1	-3
2	-5

numerically

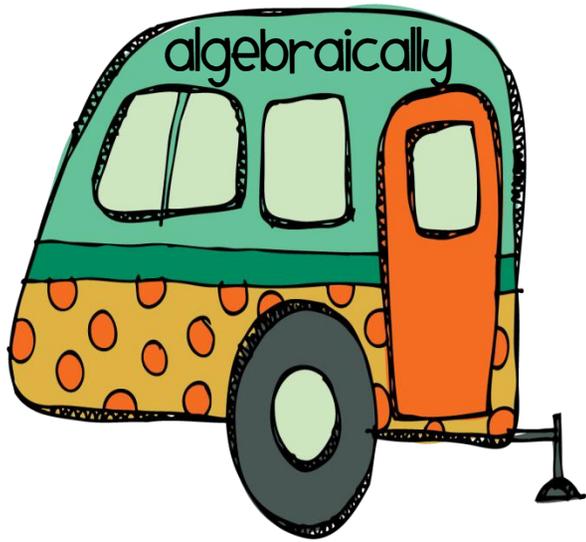


x	y
-1	-5/2
0	-1
1	0
2	2

numerically



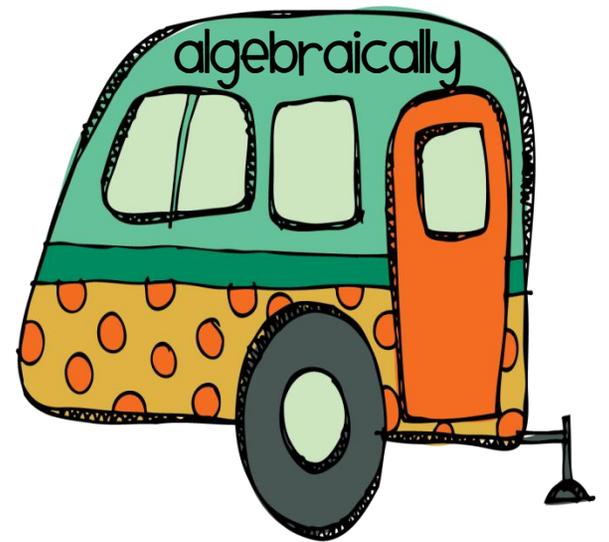
x	y
-1	-7/2
0	-4
1	-5
2	-7



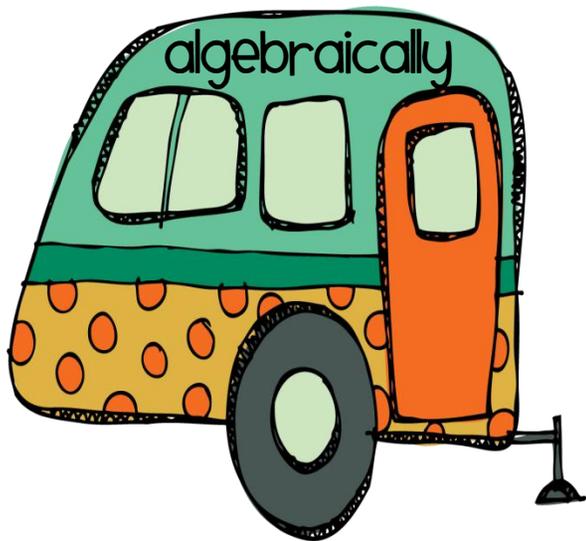
$$y = 2x - 3$$



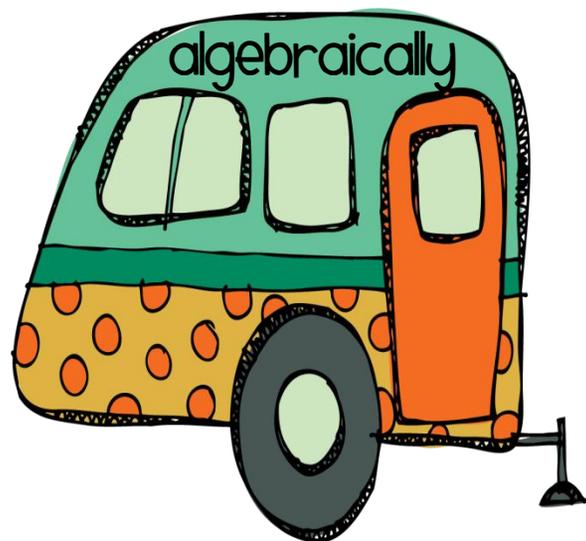
$$y = 2x - 4$$



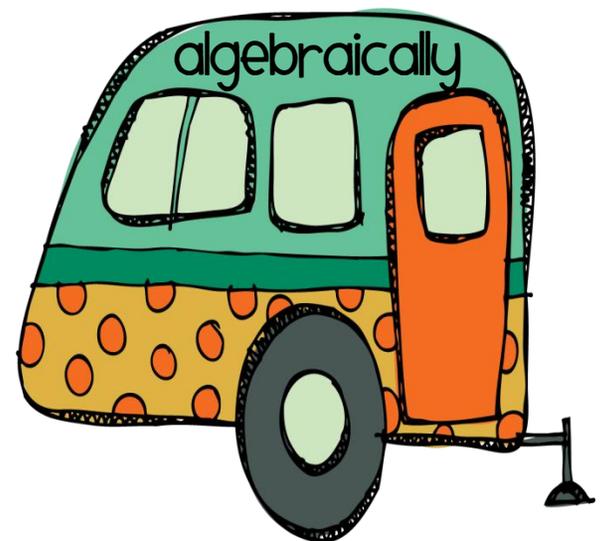
$$y = 2x - 5$$



$$y = -2x - 1$$

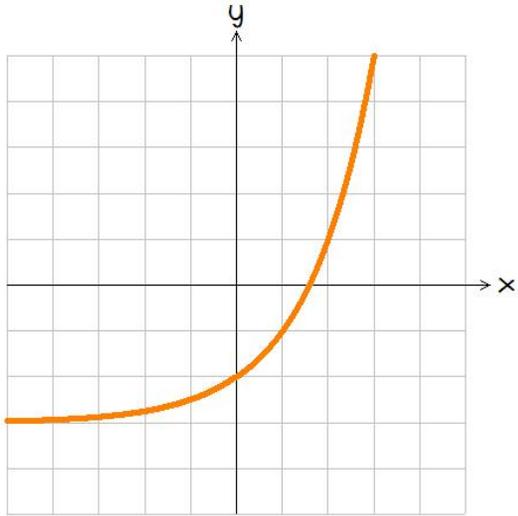


$$y = -2x - 2$$

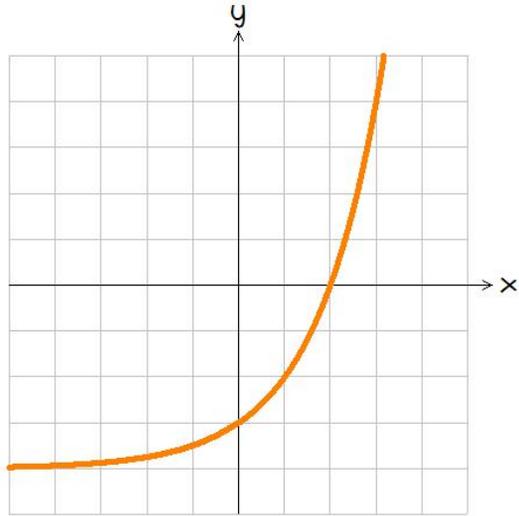


$$y = -2x - 3$$

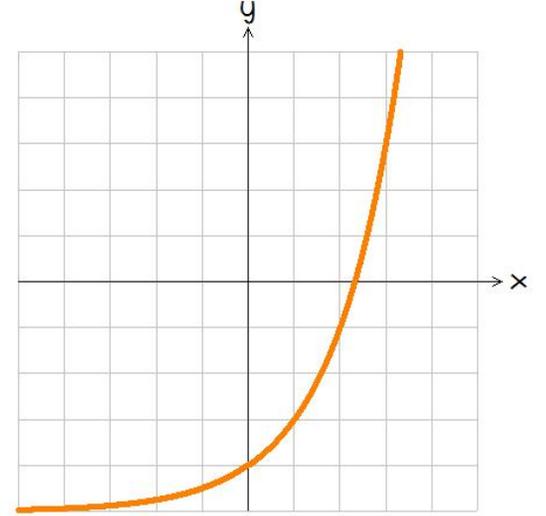
graphically



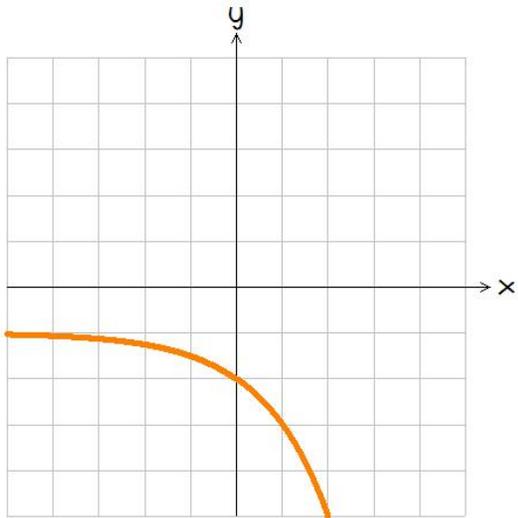
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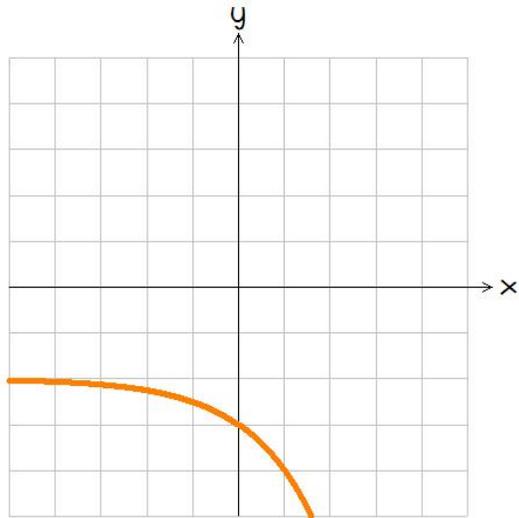
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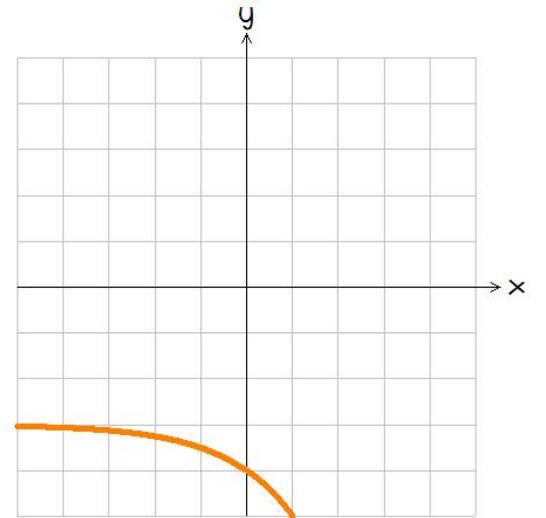
graphically

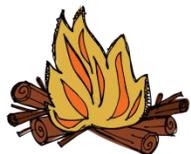


graphically



graphically





y-int. $(0, -2)$



growth factor: 2



y-int. $(0, -3)$



growth factor: 2



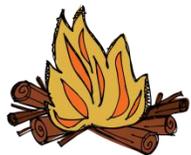
y-int. $(0, -4)$



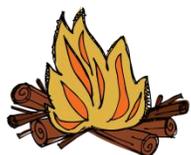
growth factor: 2



x-axis reflection



y-int. $(0, -2)$



growth factor: 2



x-axis reflection



y-int. $(0, -3)$



growth factor: 2



x-axis reflection



y-int. $(0, -4)$



growth factor: 2

numerically



x	y
-1	5/2
0	3
1	4
2	6

numerically



x	y
-1	7/2
0	4
1	5
2	7

numerically



numerically



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

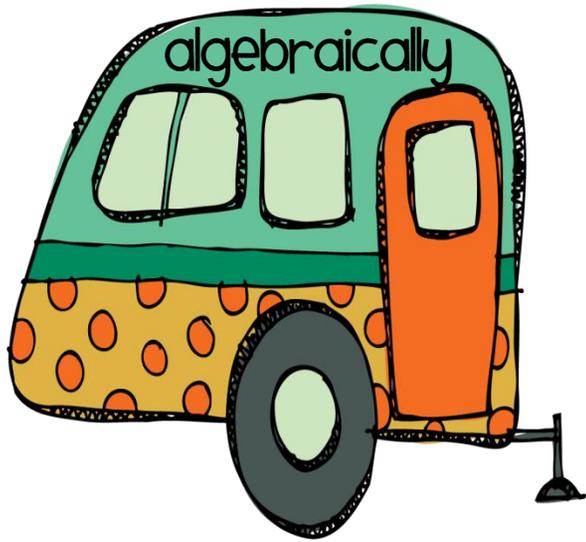
numerically



x	y
-1	5/2
0	2
1	1
2	-1

numerically

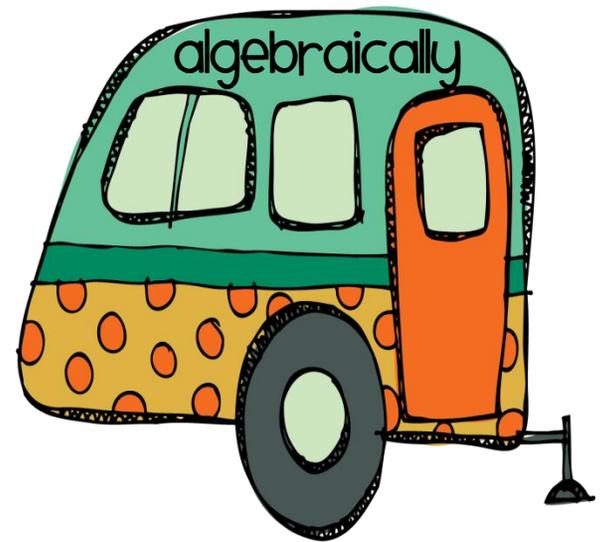




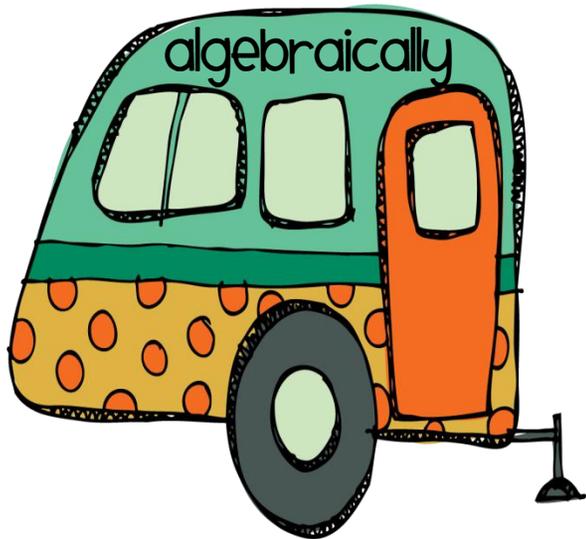
$$y = 2^x + 2$$



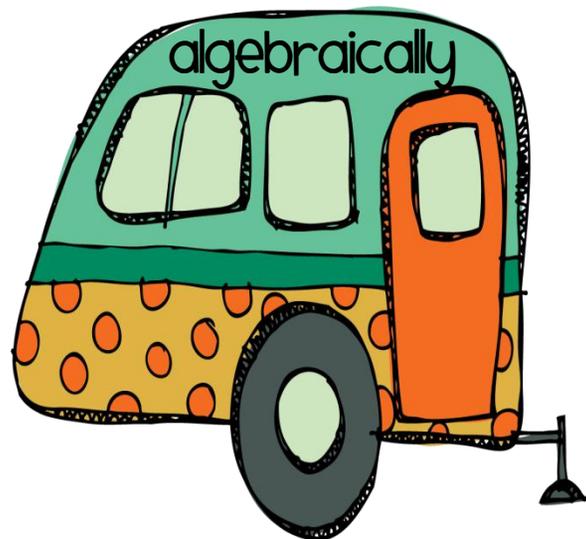
$$y = 2^x + 3$$



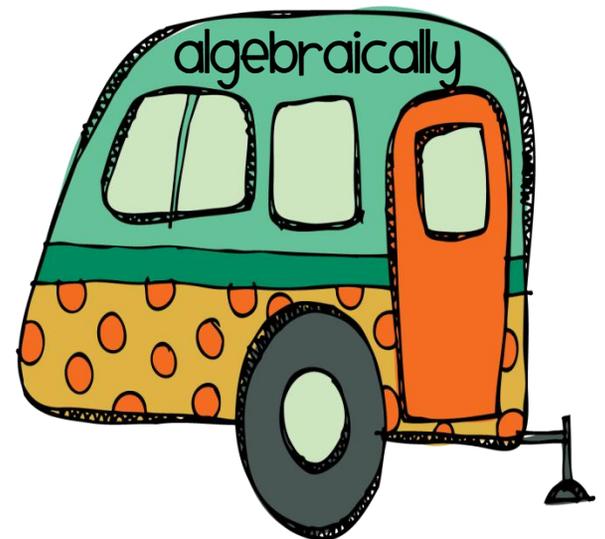
...



$$y = -2^x + 2$$

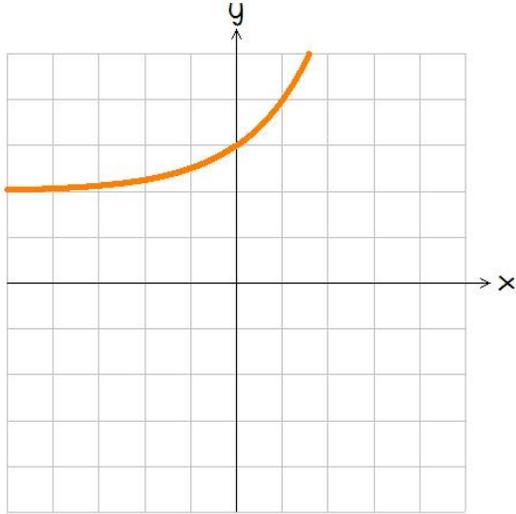


$$y = -2^x + 3$$

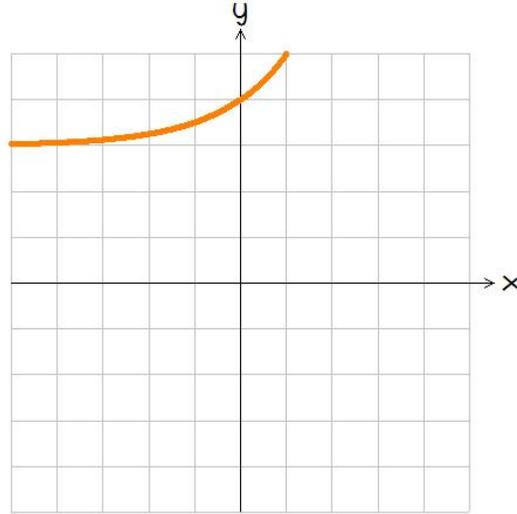


...

graphically



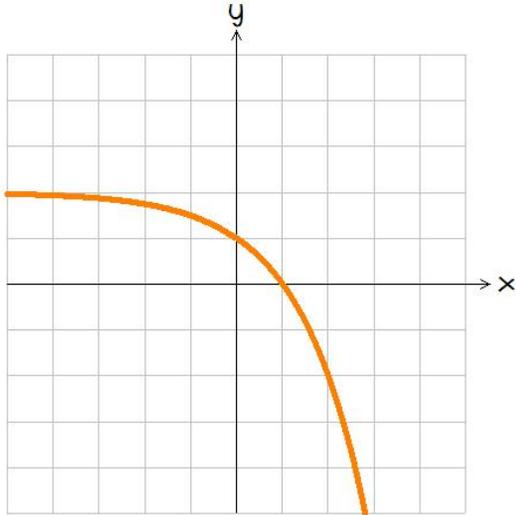
graphically



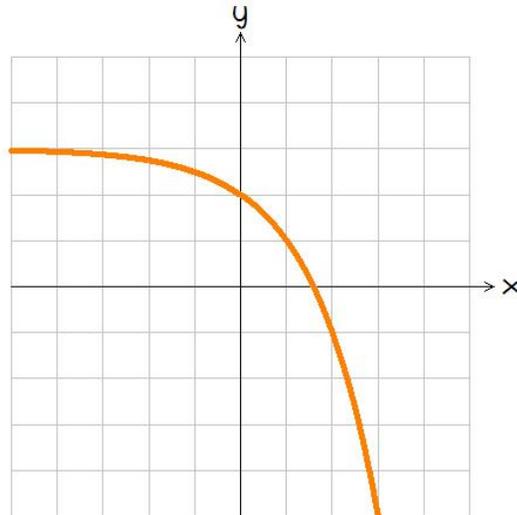
graphically



graphically

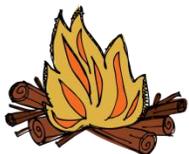


graphically

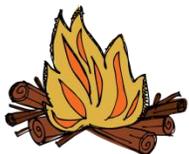


graphically

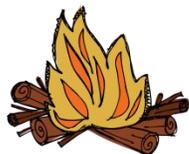




y-int. (0, 3)



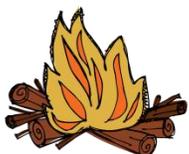
growth factor: 2



y-int. (0, 4)



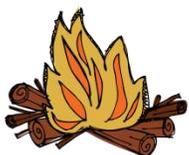
growth factor: 2



x-axis reflection



y-int. (0, 1)



growth factor: 2



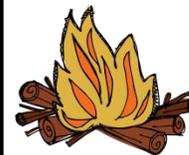
x-axis reflection



y-int. (0, 2)



growth factor: 2



exponential functions MATCHING GAME

parent function: $y=2^x$
NUMERICALLY

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numerically

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

numerically

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

numerically

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

numerically

x	y
-1	1/2
0	1
1	2
2	4

numerically

x	y
-1	-1/2
0	-1
1	-2
2	-4

numerically

x	y
-1	3/2
0	2
1	3
2	5

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numerically

x	y
-1	-5/2
0	-2
1	-1
2	1

numerically

x	y
-1	-7/2
0	-3
1	-2
2	0

numerically

x	y
-1	-9/2
0	-4
1	-3
2	-1

numerically

x	y
-1	5/2
0	3
1	4
2	6

numerically

x	y
-1	7/2
0	4
1	5
2	7

numerically

numerically

x	y
-1	-3/2
0	-2
1	-3
2	-5

numerically

x	y
-1	-5/2
0	-1
1	0
2	2

numerically

x	y
-1	-7/2
0	-4
1	-5
2	-7

numerically

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

numerically

x	y
-1	5/2
0	2
1	1
2	-1

numerically

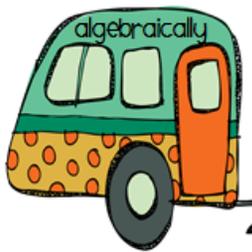
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exponential functions MATCHING GAME

parent function: $y=2^x$
ALGEBRAICALLY

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algebraically



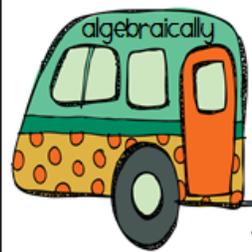
$y=2^x-2$

algebraically



$y=2^x-1$

algebraically



$y=-2^x+1$

algebraically



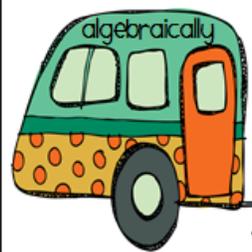
$y=2^x$

algebraically



$y=-2^x$

algebraically



$y=2^x+1$

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algebraically



$y=2^x-3$

algebraically



$y=2^x-4$

algebraically



$y=2^x-5$

algebraically



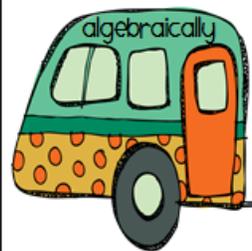
$y=2^x+2$

algebraically



$y=2^x+3$

algebraically



...

algebraically



$y=-2^x-1$

algebraically



$y=-2^x-2$

algebraically



$y=-2^x-3$

algebraically



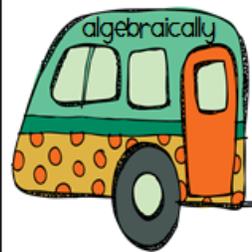
$y=-2^x+2$

algebraically



$y=-2^x+3$

algebraically



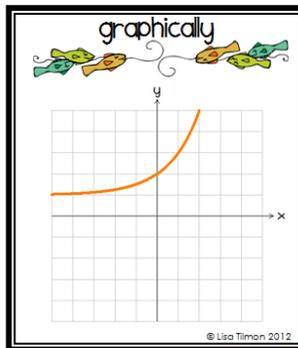
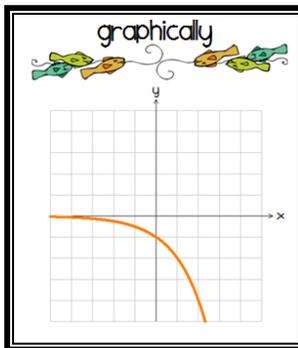
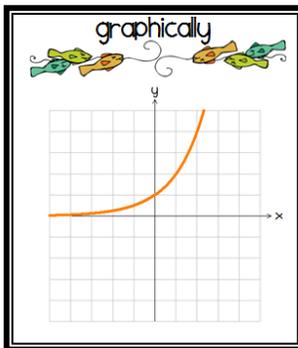
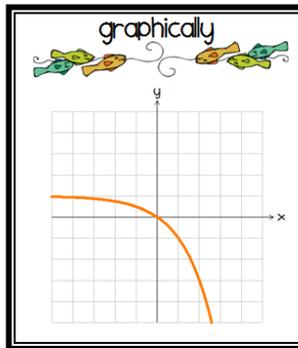
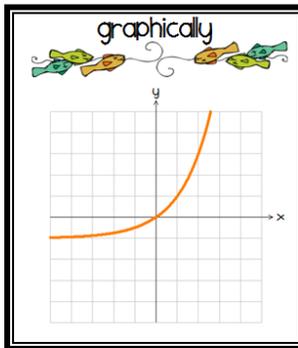
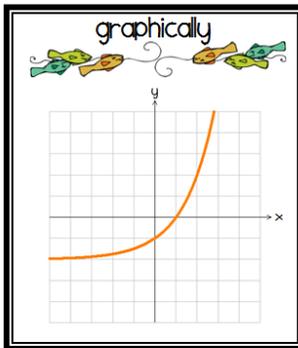
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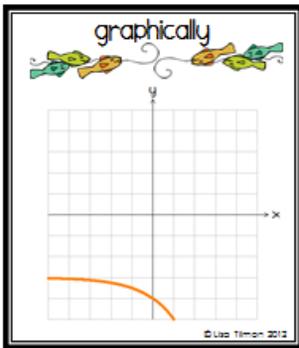
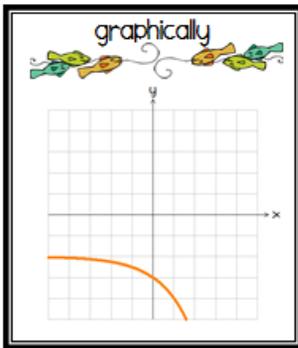
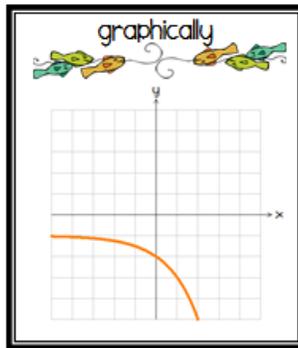
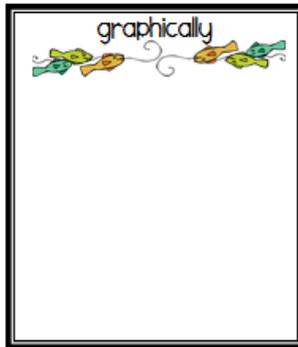
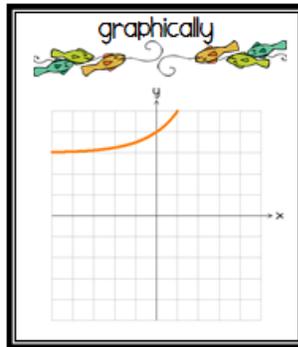
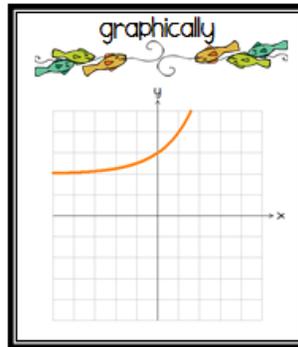
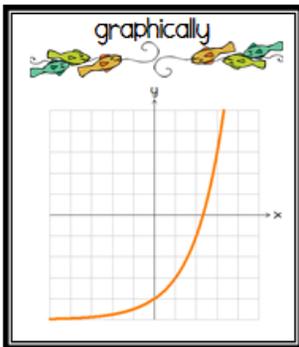
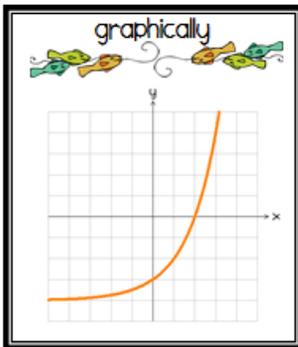
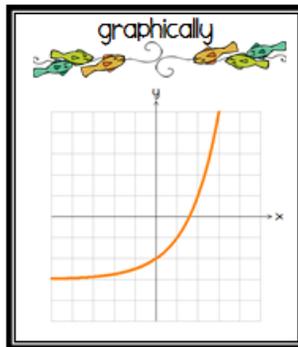
exponential functions MATCHING GAME

parent function: $y=2^x$
GRAPHICALLY

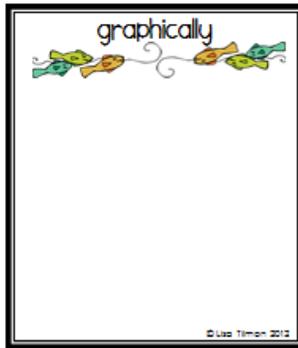
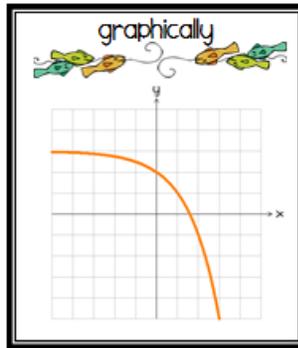
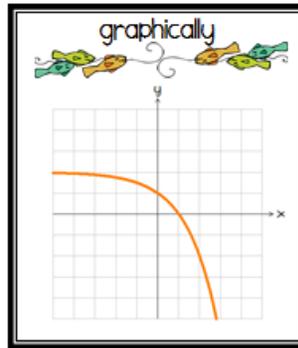
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exponential functions MATCHING GAME

parent function: $y=2^x$
VERBALLY

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<p>verbally</p> <p>y-int. (0, -1)</p> <p>growth factor: 2</p>	<p>verbally</p> <p>y-int. (0, 0)</p> <p>growth factor: 2</p>	<p>verbally</p> <p>x-axis reflection</p> <p>y-int. (0, 0)</p> <p>growth factor: 2</p>
<p>verbally</p> <p>y-int. (0, 1)</p> <p>growth factor: 2</p>	<p>verbally</p> <p>x-axis reflection</p> <p>y-int. (0, -1)</p> <p>growth factor: 2</p>	<p>verbally</p> <p>y-int. (0, 2)</p> <p>growth factor: 2</p>

<p>verbally</p> <p>y-int. (0, -2)</p> <p>growth factor: 2</p>	<p>verbally</p> <p>y-int. (0, -3)</p> <p>growth factor: 2</p>	<p>verbally</p> <p>y-int. (0, -4)</p> <p>growth factor: 2</p>	<p>verbally</p> <p>y-int. (0, 3)</p> <p>growth factor: 2</p>	<p>verbally</p> <p>y-int. (0, 4)</p> <p>growth factor: 2</p>	<p>verbally</p>
<p>verbally</p> <p>x-axis reflection</p> <p>y-int. (0, -2)</p> <p>growth factor: 2</p>	<p>verbally</p> <p>x-axis reflection</p> <p>y-int. (0, -3)</p> <p>growth factor: 2</p>	<p>verbally</p> <p>x-axis reflection</p> <p>y-int. (0, -4)</p> <p>growth factor: 2</p>	<p>verbally</p> <p>x-axis reflection</p> <p>y-int. (0, 1)</p> <p>growth factor: 2</p>	<p>verbally</p> <p>x-axis reflection</p> <p>y-int. (0, 2)</p> <p>growth factor: 2</p>	<p>verbally</p>

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exponential functions **MATCHING GAME**

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for a coordinating Exponential Functions Matching Game
that includes these additional parent functions:

$$y=3^x, y=4^x, y=5^x, y=\frac{1}{2}^x, y=\frac{1}{3}^x, y=\frac{1}{4}^x, \text{ and } y=\frac{1}{5}^x$$