

Exponential Growth & Decay

Learning Goals

Minds on Math #1

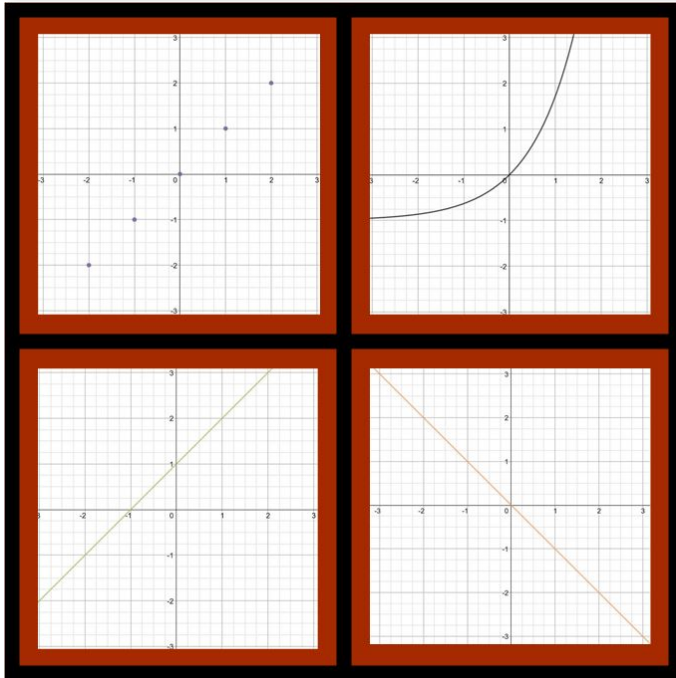
Representation:

5, 9, 13, 17, 21, ...	5, 15, 45, 135, 405, ...
5, 2, -1, -4, -7, ...	10, 13, 16, 19, 22, ...

Which one doesn't belong?

Minds on Math #2

Representation:



Which one doesn't belong?

Minds on Math #3

Representation:

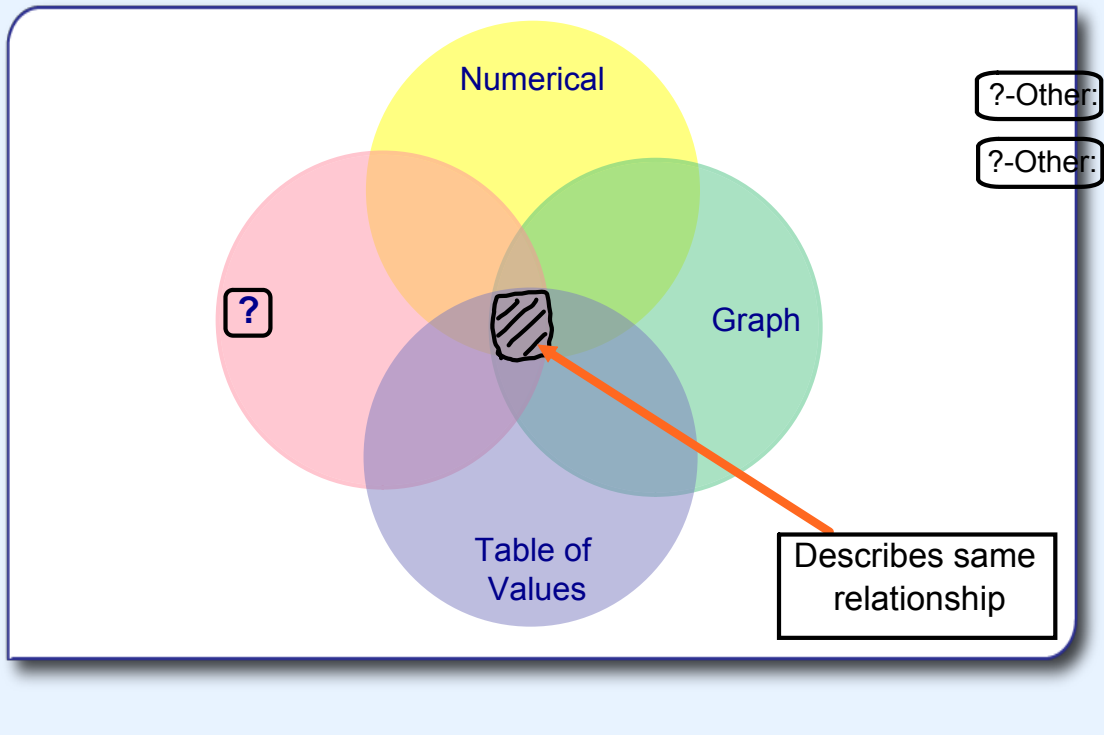
	A	B	C																																								
A	<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>-2</td> <td>-4</td> </tr> <tr> <td>-1</td> <td>-1</td> </tr> <tr> <td>0</td> <td>2</td> </tr> <tr> <td>1</td> <td>5</td> </tr> <tr> <td>2</td> <td>8</td> </tr> </tbody> </table>	x	y	-2	-4	-1	-1	0	2	1	5	2	8	<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>1</td> </tr> <tr> <td>2</td> <td>4</td> </tr> <tr> <td>3</td> <td>9</td> </tr> <tr> <td>4</td> <td>16</td> </tr> <tr> <td>5</td> <td>25</td> </tr> <tr> <td>6</td> <td>36</td> </tr> </tbody> </table>	x	y	0	0	1	1	2	4	3	9	4	16	5	25	6	36	<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>4</td> </tr> <tr> <td>1</td> <td>12</td> </tr> <tr> <td>2</td> <td>36</td> </tr> <tr> <td>3</td> <td>108</td> </tr> <tr> <td>4</td> <td>324</td> </tr> </tbody> </table>	x	y	0	4	1	12	2	36	3	108	4	324
x	y																																										
-2	-4																																										
-1	-1																																										
0	2																																										
1	5																																										
2	8																																										
x	y																																										
0	0																																										
1	1																																										
2	4																																										
3	9																																										
4	16																																										
5	25																																										
6	36																																										
x	y																																										
0	4																																										
1	12																																										
2	36																																										
3	108																																										
4	324																																										
B																																											
C																																											

Which one doesn't belong?



Consolidate

Each of the representations demonstrate the same relationship(s) in a given set of data



Take Action #1

Remember your goals:

- ★ -identify "growth" and "decay" factors (for relationships that are "exponential")
- ★ -represent growth and decay using different forms

Consider the following data set:

x	1	2	3	...
y	2	6	18	...

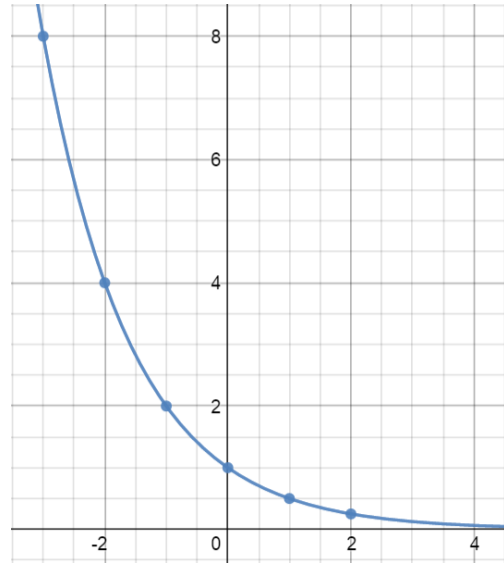
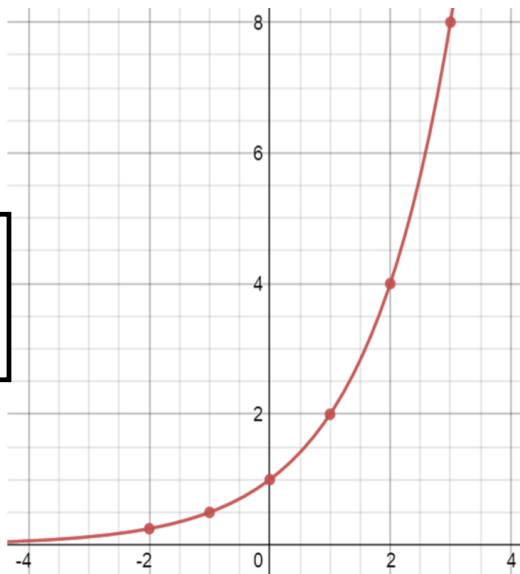
One of the later terms in the sequence of y -values is 4374.

Determine the previous two terms.

Take Action #2

- Which represents "growth"? "decay"?
- Determine the growth and decay factors.

Overlay



Take Action #3

A sequence has a decay factor of $\frac{1}{5}$. The first term in the sequence is 9375.

- List the next three terms.
- Determine the value of the 12th term.