

C.5: Graph Exponential Models

Objective: To graph exponential growth and decay.

$$y = a(b)^x$$

a-value

growth/decay factor
 growth: when $b > 1$
 decay: when $0 < b < 1$

Ex. Identify each function as growth or decay.

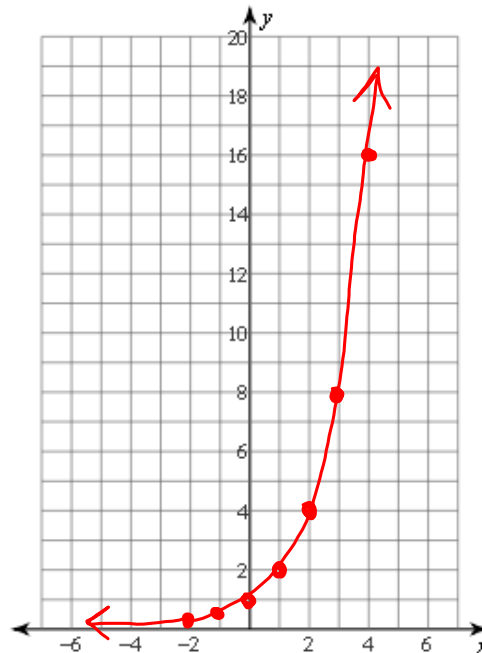
- $y = 12(.25)^x$ decay
- $y = 0.5(3)^x$ growth

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Graphing Exponential Functions

Ex1. $y = (2)^x$

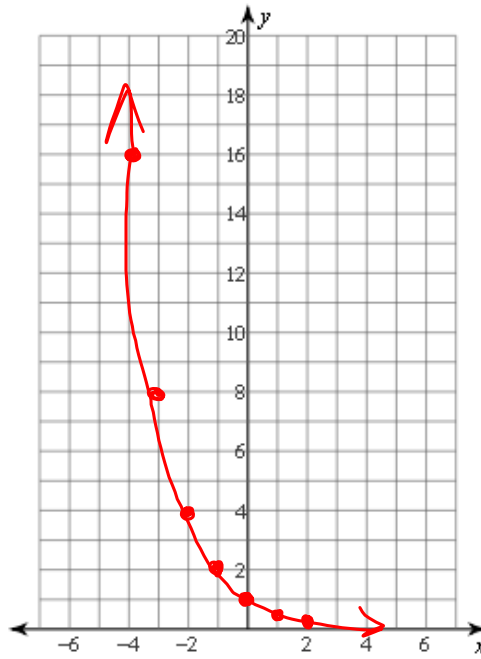
x	y
4	16
3	8
2	4
1	2
0	1
-1	0.5
-2	0.25



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Ex2. $y = (1/2)^x$

x	y
2	0.25
1	0.5
0	1
-1	2
-2	4
-3	8
-4	16

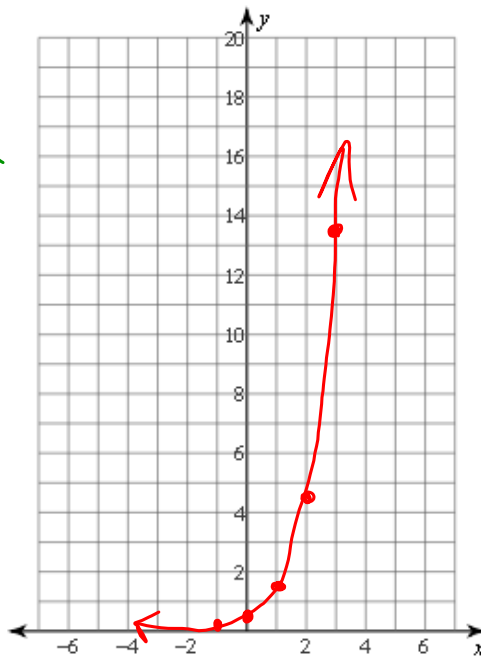
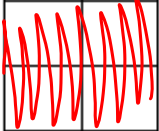


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Ex3. $y = 0.5(3)^x$

x	y
3	13.5
2	4.5
1	1.5
0	0.5
-1	0.16

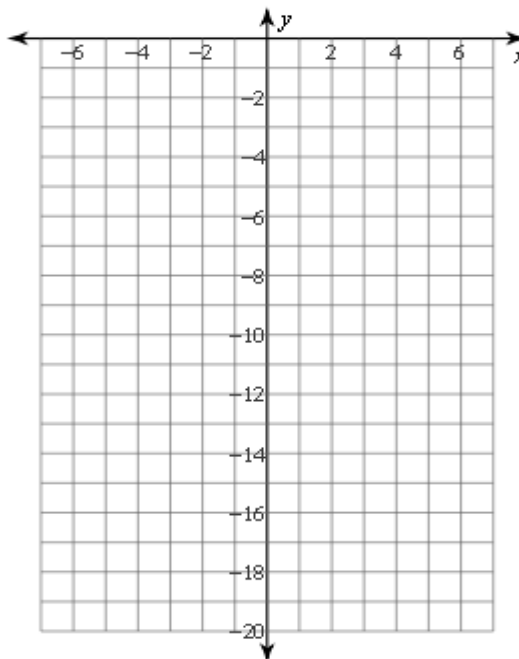
↑
growth



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Ex4. $y = -8\left(\frac{3}{4}\right)^x$

x	y



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Transformations of an Exponential Graph

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

Multiplier:

Stretch $a > 1$

Shrink $0 < a < 1$

Reflect if negative

Vertical Shift:
down/up

Horizontal Shift:
left/right
(remember opp sign!)

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