

# Graphing and Analyzing Exponential Functions

1.  $f(x) = 3^x$   <sup>$b > 1$</sup>  Growth or Decay?

Yint: 1 Asymp:  $y=0$   
 D:  $(-\infty, \infty)$  R:  $(0, \infty)$   
 EB:  $x \xrightarrow{R} +\infty, f(x) \rightarrow \infty$   
 $x \xrightarrow{L} -\infty, f(x) \rightarrow 0$

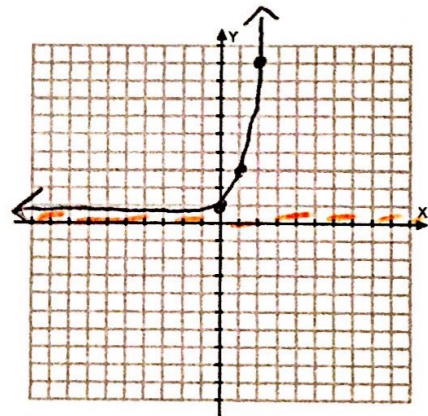


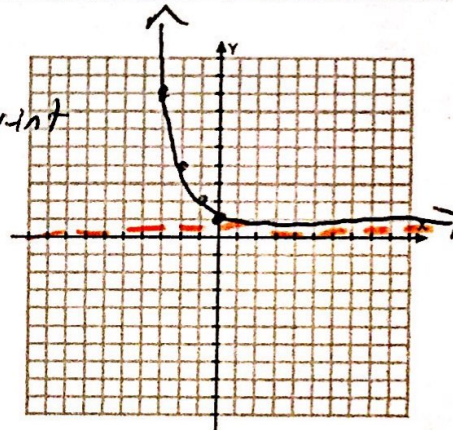
table  
↓

x	y
0	1 ← y-int
1	3
2	9
3	27

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2.  $f(x) = (2)^{-x}$   <sup>$b > 1$</sup>  Growth or Decay?

Yint: 1 Asymp:  $y=0$   
 D:  $(-\infty, \infty)$  R:  $(0, \infty)$   
 EB:  $x \xrightarrow{R} +\infty, f(x) \rightarrow 0$   
 $x \xrightarrow{L} -\infty, f(x) \rightarrow \infty$

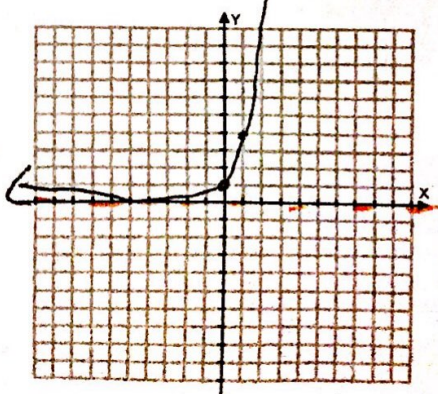


x	y
0	1
-1	2
-2	4
-3	8
-4	16

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★ 3.  $f(x) = 4^x$   <sup>$b > 1$</sup>  Growth or Decay?

Yint: 1 Asymp:  $y=0$   
 D:  $(-\infty, \infty)$  R:  $(0, \infty)$   
 EB:  $x \xrightarrow{R} +\infty, f(x) \rightarrow \infty$   
 $x \xrightarrow{L} -\infty, f(x) \rightarrow 0$

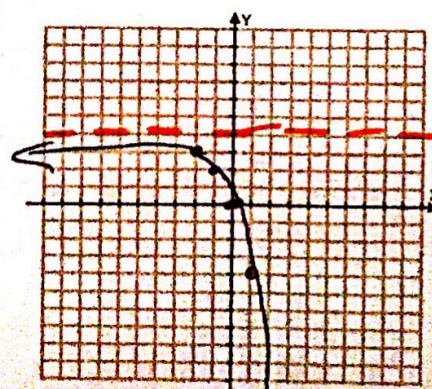


x	y
0	1
1	4
2	16

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4.  $f(x) = -4(2^x) + 4$   <sup>$b > 1$</sup>  Growth or Decay?

Yint: 0 Asymp:  $y=4$   
 D:  $(-\infty, \infty)$  R:  $(-\infty, 4)$   
 EB:  $x \xrightarrow{R} +\infty, f(x) \rightarrow -\infty$   
 $x \xrightarrow{L} -\infty, f(x) \rightarrow 4$



x	y
-2	3
-1	2
0	0
1	-4
2	-12

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