

Name \_\_\_\_\_

Date key

Graph each Function

1.  $y = -2^{x+1} + 1$

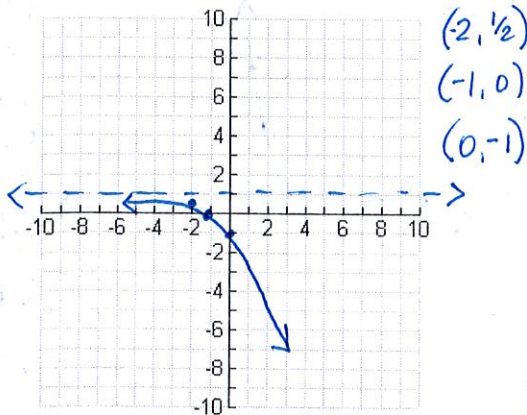
Transformations: left 1, up 1, reflect over x-axis

Domain:  $\mathbb{R}$  Range:  $(-\infty, 1)$

Asymptote:  $y=1$  Inc or Dec

X-Int:  $(-1, 0)$  Y-Int:  $(0, -1)$

End Behavior:  $x \rightarrow -\infty, f(x) \rightarrow 1$   
 $x \rightarrow \infty, f(x) \rightarrow -\infty$



2.  $y = -\log_3(x+1) - 2$

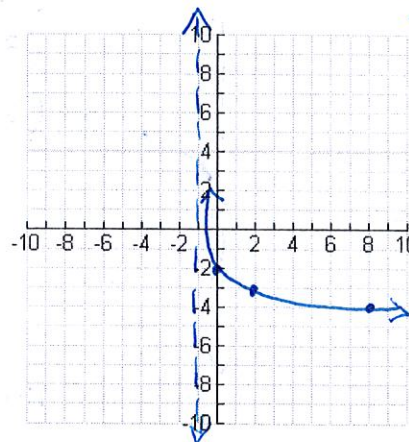
Transformations: left 1, down 2, reflect over x-axis

Domain:  $(-1, \infty)$  Range:  $\mathbb{R}$

Asymptote:  $x=-1$  Inc or Dec

X-Int:  $(-\frac{8}{9}, 0)$  Y-Int:  $(0, -2)$

End Behavior:  $x \rightarrow \infty, f(x) \rightarrow -\infty$   
 $x \rightarrow -1, f(x) \rightarrow \infty$



x-int: let  $y=0$   
 $0 = -\log_3(x+1) - 2$   
 $2 = -\log_3(x+1)$   
 $-2 = \log_3(x+1)$   
 $3^{-2} = x+1$   
 $\frac{1}{9} = x+1$   
 $(0, -2)$   
 $(2, -3)$   
 $(8, -4)$   
 $x = -\frac{8}{9}$

3.  $y = \log_4(x-2) - 1$

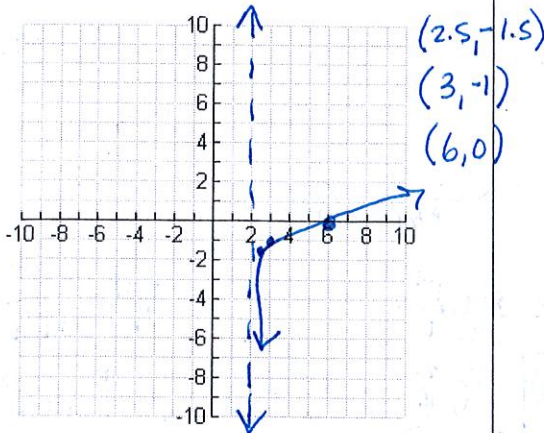
Transformations: right 2, down 1

Domain:  $(2, \infty)$  Range:  $\mathbb{R}$

Asymptote:  $x=2$  Inc or Dec

X-Int:  $(6, 0)$  Y-Int: none

End Behavior:  $x \rightarrow 2, f(x) \rightarrow -\infty$   
 $x \rightarrow \infty, f(x) \rightarrow \infty$



4.  $y = \left(\frac{1}{4}\right)^{x-1} - 3$

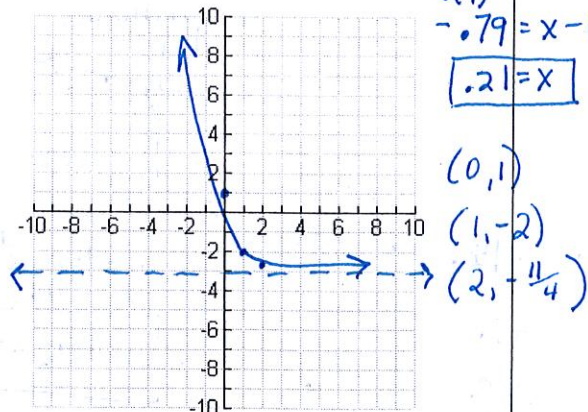
Transformations: right 1, down 3

Domain:  $\mathbb{R}$  Range:  $(-3, \infty)$

Asymptote:  $y=-3$  Inc or Dec

X-Int:  $(.21, 0)$  Y-Int:  $(0, 1)$

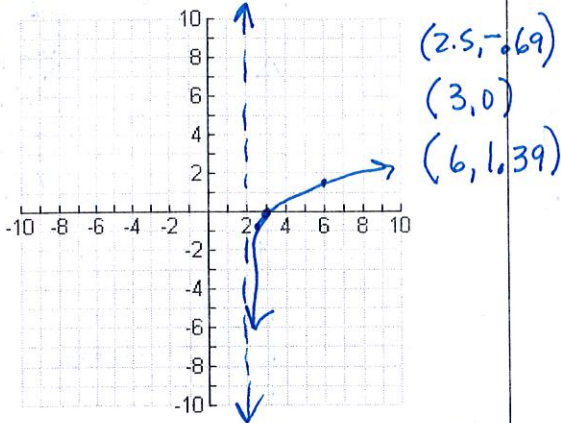
End Behavior:  $x \rightarrow -\infty, f(x) \rightarrow \infty$   
 $x \rightarrow \infty, f(x) \rightarrow -3$



x int: let  $y=0$   
 $0 = \left(\frac{1}{4}\right)^{x-1} - 3$   
 $3 = \left(\frac{1}{4}\right)^{x-1}$   
 $\log_4 3 = x-1$   
 $-.79 = x-1$   
 $.21 = x$   
 $(0, 1)$   
 $(1, -2)$   
 $(2, -\frac{11}{4})$

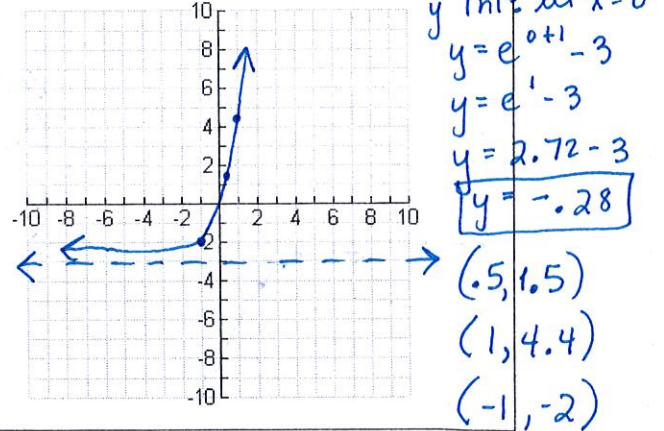
5.  $y = \ln(x-2)$

Transformations: right 2  
 Domain:  $(2, \infty)$  Range:  $\mathbb{R}$   
 Asymptote:  $x=2$  (Inc) or Dec  
 X-Int:  $(3,0)$  Y-Int: (none)  
 End Behavior:  $x \rightarrow 2, f(x) \rightarrow -\infty$   
 $x \rightarrow \infty, f(x) \rightarrow \infty$



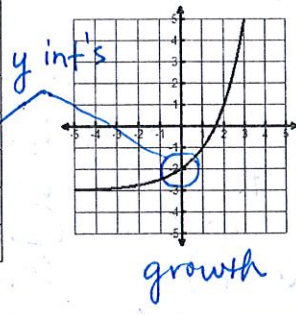
6.  $y = e^{x+1} - 3$

Transformations: left 1, down 3  
 Domain:  $\mathbb{R}$  Range:  $(-3, \infty)$   
 Asymptote:  $y=-3$  (Inc) or Dec  
 X-Int:  $(-0.01, 0)$  Y-Int:  $(0, -2.8)$   
 End Behavior:  $x \rightarrow -\infty, f(x) \rightarrow -3$   
 $x \rightarrow \infty, f(x) \rightarrow \infty$



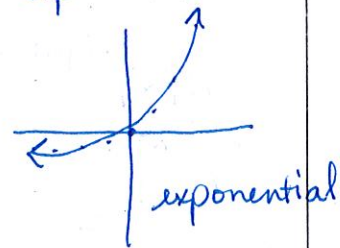
7. A) Does the table or graph have a larger y-intercept? Table  
 B) Determine which is a growth problem and which is a decay problem.

X	F(x)
-3	6
-2	4
-1	3
0	2.5
1	2.25
2	2.125



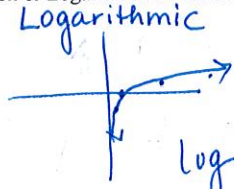
8. A) What is type of asymptote (vertical or horizontal) does this table have? horizontal  
 B) What is the equation of the asymptote?  $y=-1$   
 C) Is #8 an Exponential Function or a Logarithmic Function? exponential

X	F(x)
-3	-0.875
-2	-0.75
-1	-0.5
0	0
1	1
2	3
3	7



9. A) What is type of asymptote (vertical or horizontal) does this table have? vertical  
 B) What is the equation of the asymptote?  $x=0$   
 C) Is #9 an Exponential Function or Logarithmic Function? Logarithmic

X	F(x)
0.5	-0.63
1	0
3	1
9	2



10. Which table is a log function and which table is an exponential function?

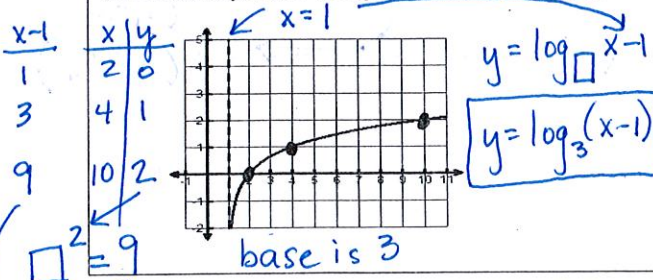
X	F(x)
-0.5	1.731
0	3
1	9
2	27

X	F(x)
-0.5	-0.63
0	0
2	1
8	2

exponential

log

11. Write the equation of the logarithm based upon the graph



12. Write the equation of the exponential based upon the graph

