

Name Key

Date \_\_\_\_\_

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

Transformations: reflect over x, left 1, up 1

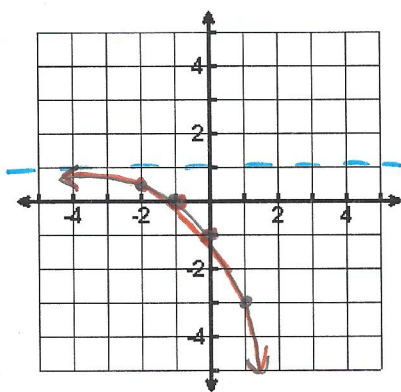
Domain:  $(-\infty, \infty)$  Range:  $(-\infty, 1)$

Asymptote:  $y = 1$  Inc or Dec  $(-\infty, \infty)$

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

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

x	x+1	y	-y	-y+1
-1	-2	1/2	-1/2	1/2
0	-1	1	-1	0
1	0	2	-2	-1



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

Transformations: reflect over x, left 1, down 2

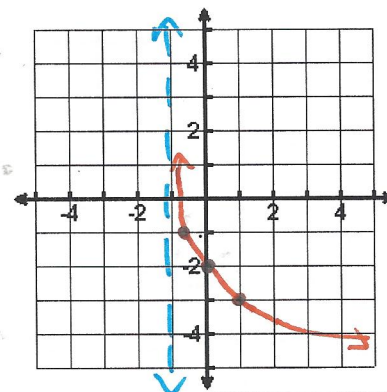
Domain:  $(-1, \infty)$  Range:  $(-\infty, \infty)$

Asymptote:  $x = -1$  Inc or Dec  $(-1, \infty)$

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

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

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



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

Transformations: right 2, down 1

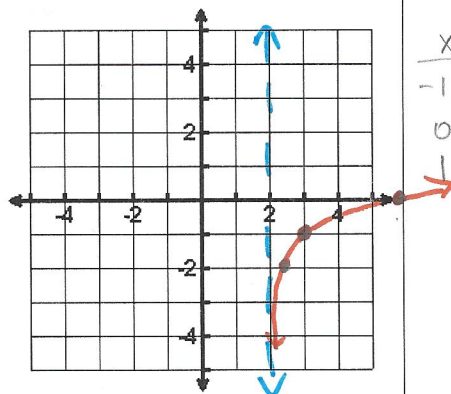
Domain:  $(2, \infty)$  Range:  $\mathbb{R}$

Asymptote:  $x = 2$  Inc or Dec  $(2, \infty)$

X-Int:  $(6, 0)$  Y-Int: NA

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

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



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

Transformations: right 1 down 3

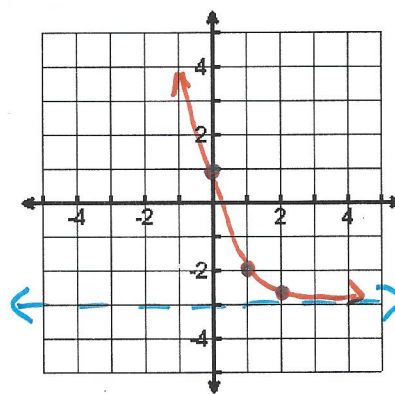
Domain:  $\mathbb{R}$  Range:  $(-3, \infty)$

Asymptote:  $y = -3$  Inc or Dec  $\mathbb{R}$

X-Int:  $(\log_4(3)+1, 0)$  Y-Int:  $(0, 1)$

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

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



$$3 = e^{x+1}$$

$$\ln 3 = x+1$$

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

Transformations: right 2

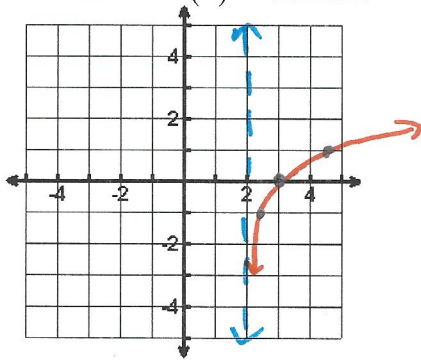
Domain:  $(2, \infty)$  Range:  $\mathbb{R}$

Asymptote:  $x=2$  (Inc) or Dec  $(2, \infty)$

X-Int:  $(3, 0)$  Y-Int: NA

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

$x$	$y$
$2 + \frac{1}{e}$	$-1$
$3$	$0$
$2 + e$	$1$



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

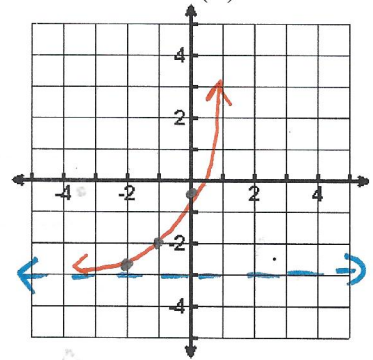
Transformations: left 1 down 3

Domain:  $(-\infty, \infty)$  Range:  $(-3, \infty)$

Asymptote:  $y = -3$  (Inc) or Dec  $(-\infty, \infty)$

X-Int:  $(\ln 3 - 1, 0)$  Y-Int:  $(0, e-3)$

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



7.  $y = \log_4(-x-3) + 1$   $-x-3=0$   
 $-(x+3)$

Transformations: reflect y, left 3, up 1

Domain:  $(-\infty, -3)$  Range:  $(-\infty, \infty)$

Asymptote:  $x = -3$  Inc or Dec  $(-\infty, -3)$

X-Int:  $(-3\frac{1}{4}, 0)$  Y-Int: NA

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

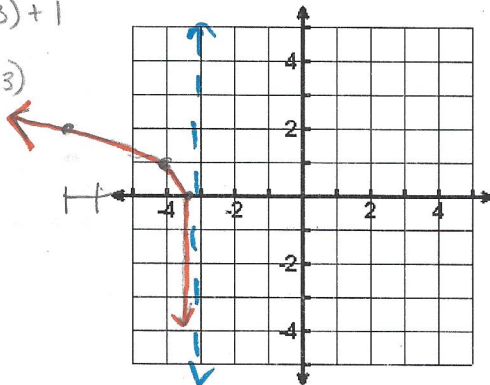
$$0 = \log_4(-x-3) + 1$$

$$-1 = \log_4(-x-3)$$

$$4^{-1} = -x-3$$

$$\frac{1}{4} = -x-3$$

$$-3\frac{1}{4} = x$$



8.  $y = \left(\frac{1}{2}\right)^{-x+1} - 2$

Transformations: reflect y, right 1, down 2

Domain:  $(-\infty, \infty)$  Range:  $(-2, \infty)$

Asymptote:  $y = -2$  (Inc) or Dec  $(-\infty, \infty)$

X-Int:  $(2, 0)$  Y-Int:  $(0, -1\frac{1}{2})$

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

