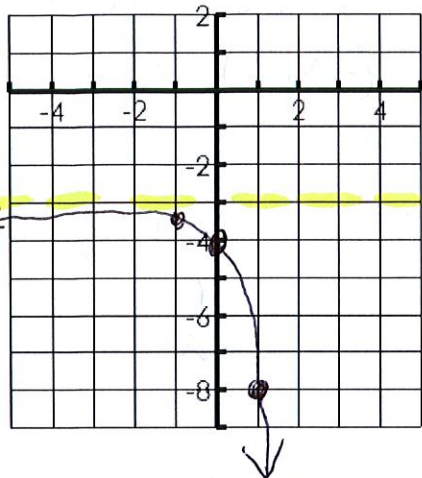


Name: Key

Date: _____

1. $y = -5^x - 3$



X	Y
1	-8
0	-4
-1	-3.15

X	Y
1	-8
0	-4
-1	-3.15

Transformations: Reflect over x-axis, down 3

State 3 points on Graph (1, -8) (0, -4) (-1, -3.15)

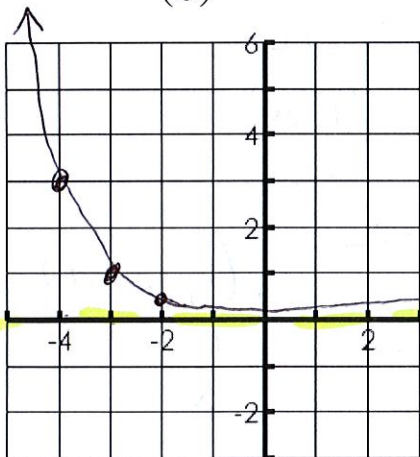
Domain \mathbb{R} Range $(-\infty, -3)$

Asymptote $y = -3$ Increasing or Decreasing

X-intercept NONE Y-intercept (0, -4)

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

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



X	Y
1	1/3
0	1
-1	3

X	Y
-2	1/3
-3	1
-4	3

Transformations: left 3

State 3 points on Graph (-2, 1/3) (-3, 1) (-4, 3)

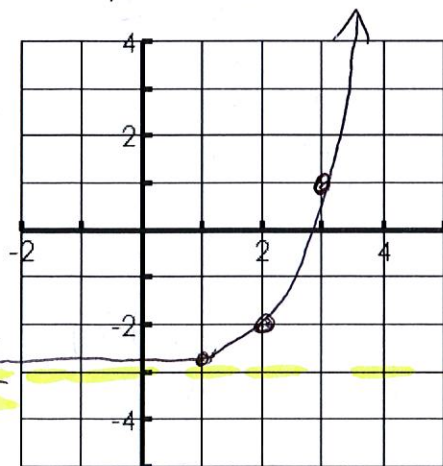
Domain \mathbb{R} Range $(0, \infty)$

Asymptote $y = 0$ Increasing or Decreasing

X-intercept NONE Y-intercept (0, 0.037)

End Behavior $x \rightarrow -\infty, f(x) \rightarrow \infty$
 $x \rightarrow \infty, f(x) \rightarrow 0$

3. $y = 4^{x-2} - 3$



X	Y
1	4
0	1
-1	1/4

X	Y
3	1
2	-2
1	-2.75

Transformations: Right 2, down 3

State 3 points on Graph (3, 1) (2, -2) (1, -2.75)

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

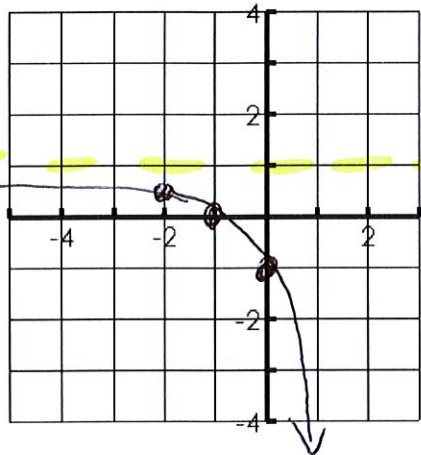
Asymptote $y = -3$ Increasing or Decreasing

X-intercept (2.79, 0) Y-intercept (0, -2.9375)

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

$x\text{-int} = 0 = 4^{x-2} - 3$
 $\log_4 3 = 4^{x-2}$
 $\frac{\log 3}{\log 4} + 2 = x = 2.79$

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



X	Y
1	-2
0	-1
-1	-1/2

X	Y
0	-1
-1	0
-2	1/2

Transformations: Reflect over x-axis, left 1, up 1
 State 3 points on Graph (0, -1) (-1, 0) (-2, 1/2)

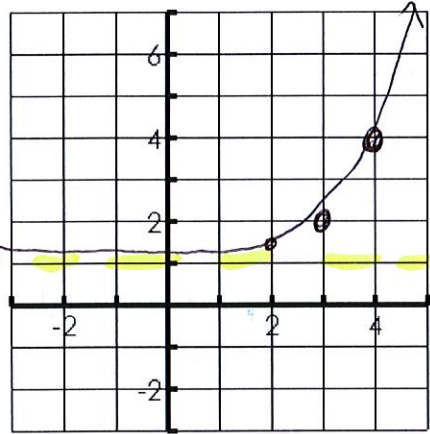
Domain \mathbb{R} Range $(-\infty, 1)$

Asymptote $y = 1$ Increasing or Decreasing

X-intercept (0, -1) Y-intercept (-1, 0)

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

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



X	Y
1	3
0	1
-1	1/3

X	Y
4	4
3	2
2	1 1/3

Transformations: Right 3, up 1

State 3 points on Graph (4, 4) (3, 2) (2, 1 1/3)

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

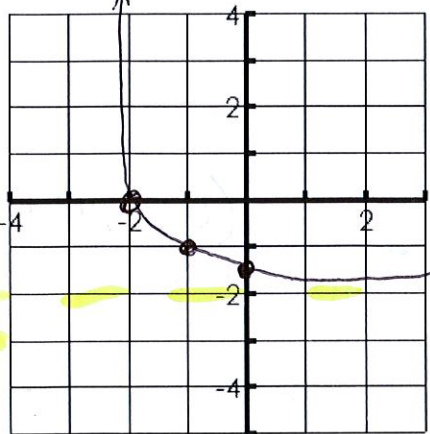
Asymptote $y = 1$ Increasing or Decreasing

X-intercept NONE Y-intercept (0, 1.037)

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

$y = 3^{0-3} + 1 = 1.037$

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



X	Y
1	1/2
0	1
-1	2

X	Y
0	-1 1/2
-1	-1
-2	0

Transformations: left 1, down 2

State 3 points on Graph (0, -1 1/2) (-1, -1) (-2, 0)

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

Asymptote $y = -2$ Increasing or Decreasing

X-intercept (-2, 0) Y-intercept (0, -1 1/2)

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