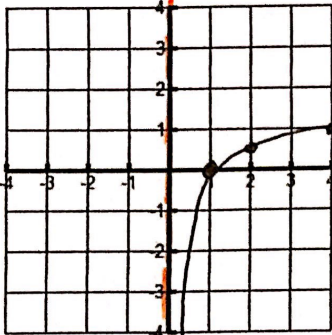


Name: \_\_\_\_\_

Date: \_\_\_\_\_

1.  $y = \log_4(x)$

$$y = \frac{\log x}{\log 4}$$



x	y
1	0
4	1
2	0.5

State 3 points on Graph (1,0) (4,1) (2, 1/2)

Domain (0, ∞) Range (-∞, ∞)

Asymptote X=0 Increasing or Decreasing

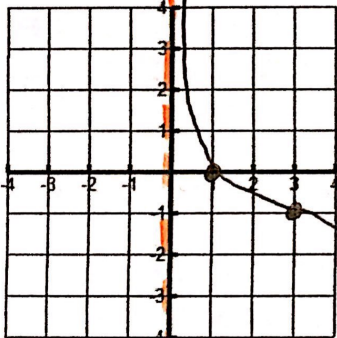
X-intercept 1 Y-intercept none

$y=0$  End Behavior  $x \rightarrow \infty$  right  $f(x) \rightarrow \infty$

$x \rightarrow 0$  left  $f(x) \rightarrow -\infty$

2.  $y = \log_3(x)$

$$\frac{\log x}{\log(\frac{1}{3})}$$



x	y
1	0
3	-1
9	-2

State 3 points on Graph (1,0) (3,-1) (9,-2)

Domain (0, ∞) Range (-∞, ∞)

Asymptote X=0 Increasing or Decreasing

X-intercept 1 Y-intercept none

$y=0$  End Behavior  $x \rightarrow \infty$  right  $f(x) \rightarrow -\infty$

$x \rightarrow 0$  left  $f(x) \rightarrow \infty$

Transformations:

~~log(x+4)~~

Examples:

1.  $y = \log_0(x+2)$

left 2

2.  $y = \log_0(x)+5$

up 5

3.  $y = -\log_0(x-1)$

√ flip, right 1

4.  $y = \log_0(-x+3)$

right 3

5.  $y = -\log_0(x+2)-7$

√ flip, left 2, down 7

6.  $y = \log_0(-x)-4$

flip H, down 4

Asymptote:

Examples:

1.  $y = \log_a(x+2)$

$x = -2$

2.  $y = \log_a(x) + 5$

$x = 0$

3.  $y = -\log_a(x-1)$

$x = 1$

4.  $y = \log_a(-x+3)$

$x = 3$

5.  $y = -\log_a(x+2) - 7$

$x = -2$

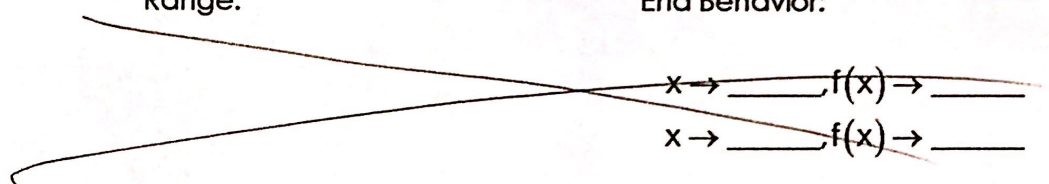
6.  $y = \log_a(-x) - 4$

$x = 0$

Domain:

Range:

End Behavior:



3.  $y = \log_3(x+2)$

$\frac{\log(x+2)}{\log 3}$

Transformations: \_\_\_\_\_

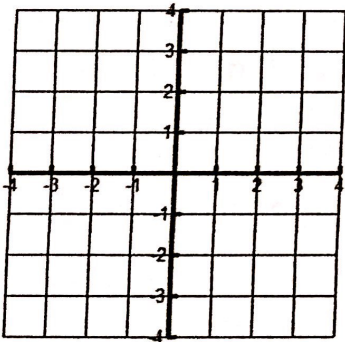
State 3 points on Graph \_\_\_\_\_

Domain \_\_\_\_\_ Range \_\_\_\_\_

Asymptote \_\_\_\_\_ Increasing or Decreasing

X-intercept \_\_\_\_\_ Y-intercept \_\_\_\_\_

End Behavior  $x \rightarrow \text{_____}, f(x) \rightarrow \text{_____}$   
 $x \rightarrow \text{_____}, f(x) \rightarrow \text{_____}$



4.  $y = \log_2(x+3) - 1$

$\frac{\log(x+3)}{\log(2)} - 1$

Transformations: \_\_\_\_\_

State 3 points on Graph \_\_\_\_\_

Domain \_\_\_\_\_ Range \_\_\_\_\_

Asymptote \_\_\_\_\_ Increasing or Decreasing

X-intercept \_\_\_\_\_ Y-intercept \_\_\_\_\_

End Behavior  $x \rightarrow \text{_____}, f(x) \rightarrow \text{_____}$   
 $x \rightarrow \text{_____}, f(x) \rightarrow \text{_____}$

