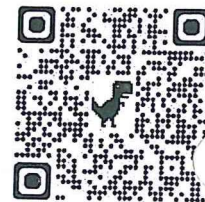


Name Schlansky
Mr. Schlansky

Date _____
Algebra II



Graphing Exponential and Logarithmic Functions

For the following equations, graph the equation and the asymptote. State the domain, range, equation of the asymptote, and end behavior.

1. $y = 2^x - 3$

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

Range: $(-3, \infty)$

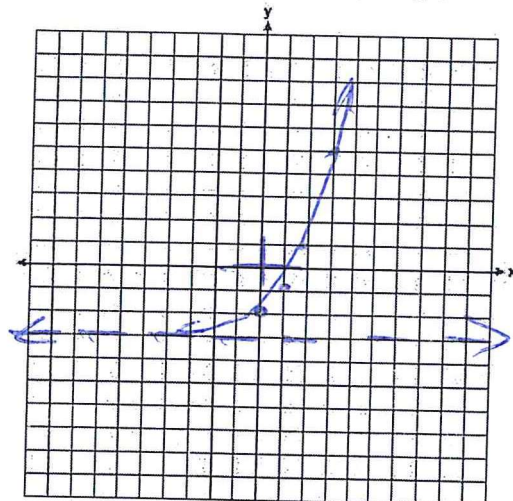
Asymptote: $y = -3$

End Behavior:

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

$x \rightarrow \infty, f(x) \rightarrow \infty$

x	y
0	-2
1	-1
2	1
3	5



2. $y = \frac{1}{2}^{x-3} + 1$

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

Range: $(1, \infty)$

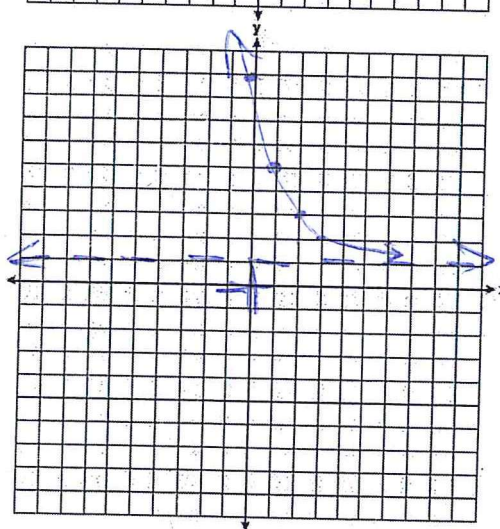
Asymptote: $y = 1$

End Behavior:

$x \rightarrow -\infty, f(x) \rightarrow \infty$

$x \rightarrow \infty, f(x) \rightarrow 1$

x	y
0	9
1	5
2	3
3	2



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

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

Range: $(-\infty, 4)$

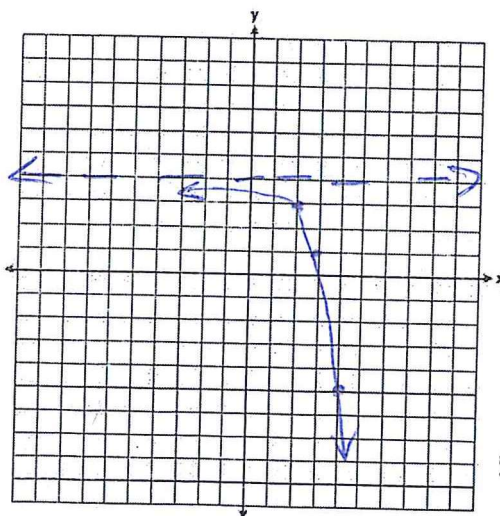
Asymptote: $y = 4$

End Behavior:

$x \rightarrow -\infty, f(x) \rightarrow 4$

$x \rightarrow \infty, f(x) \rightarrow -\infty$

x	y
2	3
3	1
4	-5



4. $y = 2(3)^{x+1} - 8$

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

Range: $(-8, \infty)$

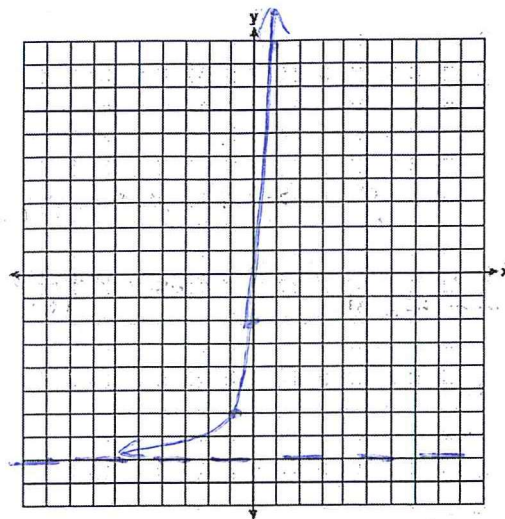
Asymptote: $y = -8$

End Behavior:

$x \rightarrow -\infty, f(x) \rightarrow -8$

$x \rightarrow \infty, f(x) \rightarrow \infty$

X	Y
-1	-6
0	-2
1	10



5. $y = -2\left(\frac{1}{3}\right)^{x-5} + 9$

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

Range: $(-\infty, 9)$

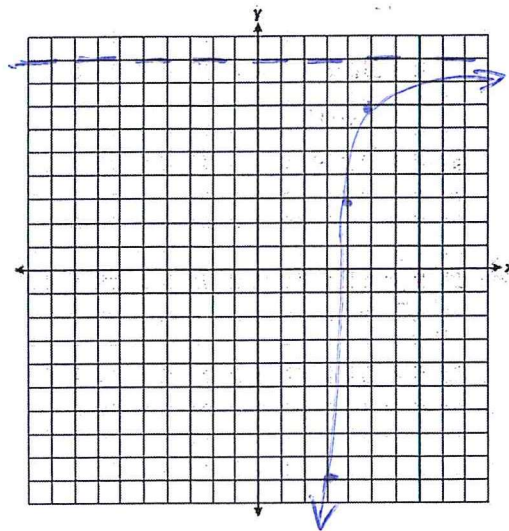
Asymptote: $y = 9$

End Behavior:

$x \rightarrow -\infty, f(x) \rightarrow -\infty$

$x \rightarrow \infty, f(x) \rightarrow 9$

X	Y
3	-9
4	3
5	7



6. $y = 3\left(\frac{1}{2}\right)^{x+1} - 7$

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

Range: $(-7, \infty)$

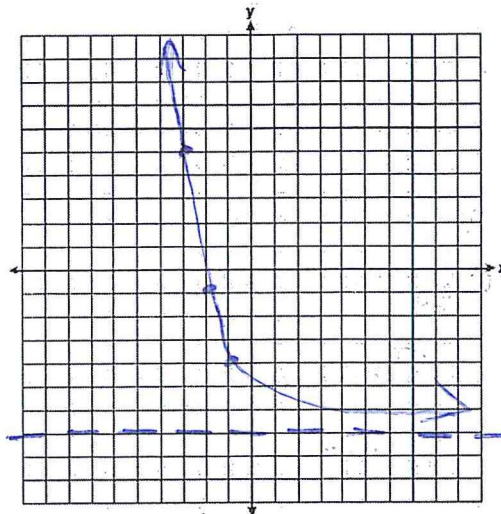
Asymptote: $y = -7$

End Behavior:

$x \rightarrow -\infty, f(x) \rightarrow \infty$

$x \rightarrow \infty, f(x) \rightarrow -7$

X	Y
-3	+5
-2	-1
-1	-4



7. $y = \log_2(x) + 3$

Domain: $(0, \infty)$

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

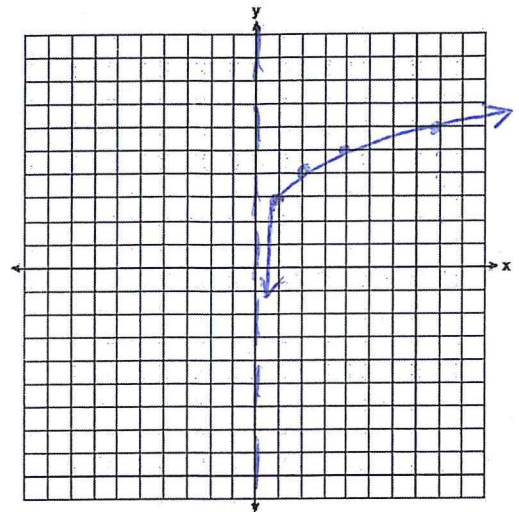
Asymptote: $x = 0$

End Behavior:

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

$x \rightarrow \infty, f(x) \rightarrow \infty$

X	Y
0	ERROR
1	3
2	4
4	5
8	6



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

Domain: $(-2, \infty)$

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

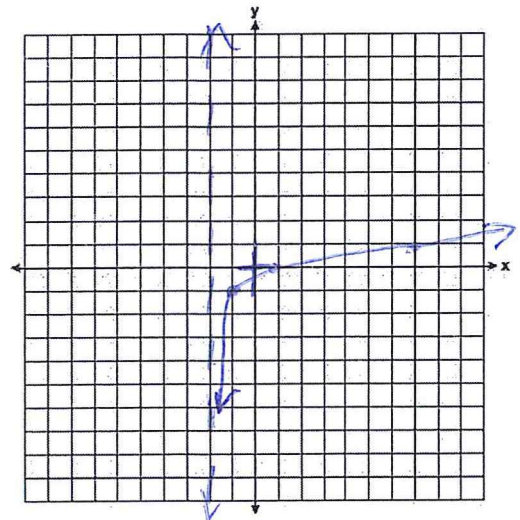
Asymptote: $x = -2$

End Behavior:

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

$x \rightarrow \infty, f(x) \rightarrow \infty$

X	Y
-2	ERROR
-1	-1
1	0
7	1



9. $y = -2 \log_2(x+6) - 4$

Domain: $(-6, \infty)$

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

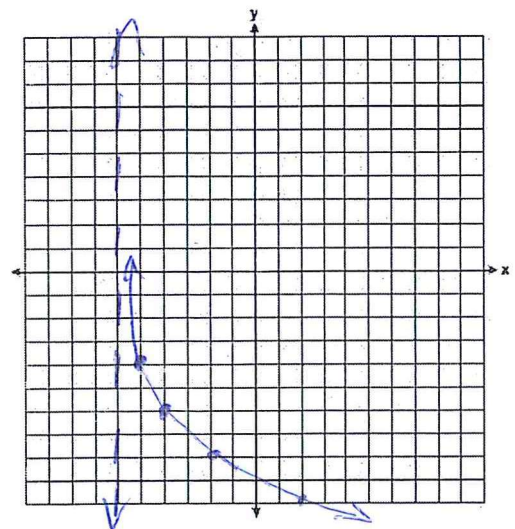
Asymptote: $x = -6$

End Behavior:

$x \rightarrow -6, f(x) \rightarrow \infty$

$x \rightarrow \infty, f(x) \rightarrow -\infty$

X	Y
-6	ERROR
-5	-4
-4	-6
-2	-8
2	-10



10. $y = 4 \log_{\frac{1}{2}}(x-3) + 1$

Domain: $(3, \infty)$

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

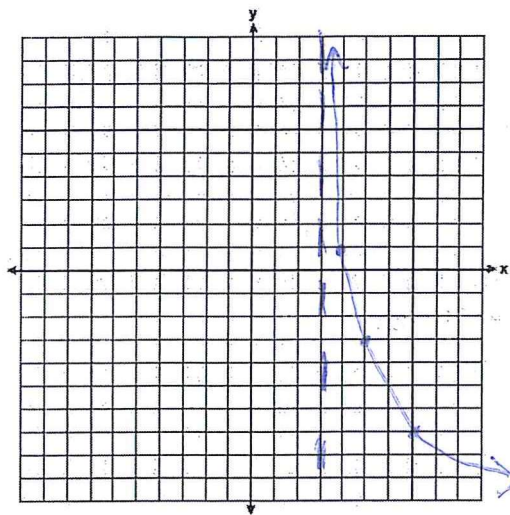
Asymptote: $x=3$

End Behavior:

$x \rightarrow 3, f(x) \rightarrow \infty$

$x \rightarrow \infty, f(x) \rightarrow -\infty$

x	y
3	ERROR
4	1
5	-3
7	-7



11. $y = 3 \log_4(x+1) - 8$

Domain: $(-1, \infty)$

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

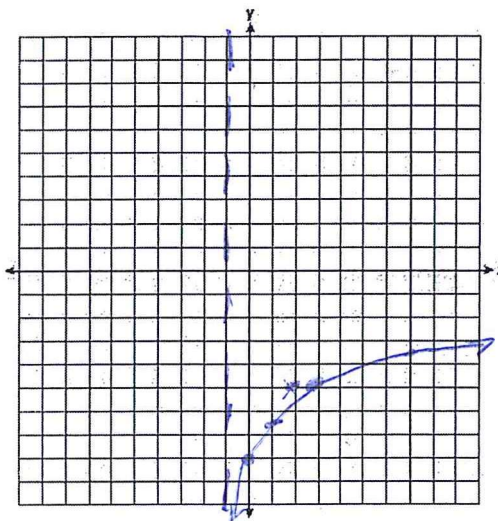
Asymptote: $x=-1$

End Behavior:

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

$x \rightarrow \infty, f(x) \rightarrow \infty$

x	y
-1	ERROR
0	-8
1	-6.5
3	-5
7	-3.5



12. $y = -4 \log_2(x+9) + 4$

Domain: $(-9, \infty)$

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

Asymptote: $x=-9$

End Behavior:

$x \rightarrow -9, f(x) \rightarrow \infty$

$x \rightarrow \infty, f(x) \rightarrow -\infty$

x	y
-9	ERROR
-8	4
-7	0
-5	-4
-1	-8

