

Name Key

Date _____

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

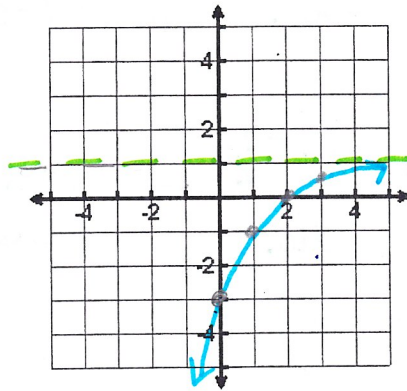
Transformations: reflect y, right 2, reflect x, up 1

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

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

X-Int: $(2, 0)$ Y-Int: $(0, -3)$

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



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

Transformations: -reflect y, right 1, reflect x, down 2

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

Asymptote: $x = 1$ Inc or Dec

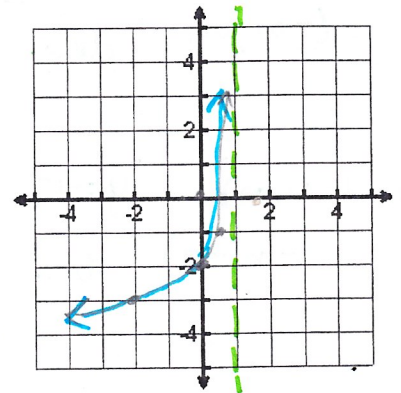
X-Int: $(\frac{8}{9}, 0)$ Y-Int: $(0, -2)$

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

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

$\frac{1}{9} = -x+1$

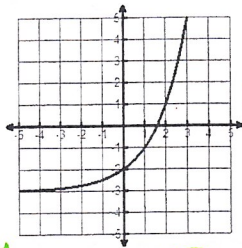
$\frac{8}{9} = x$



3. A) Does the table or graph have a larger y-int? table

B) Determine which is growth and which is decay.

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



growth

decay

4. A) Is the table Exponential or Logarithmic?

B) What is type of asymptote does this table have? hor.

C) What is the equation of the asymptote?

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

$y = -1$

5. A) Is the table an Exp or Log Function?

B) What is type of asymptote does this have? vertical

C) What is the equation of the asymptote?

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

$x = 0$

6. 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

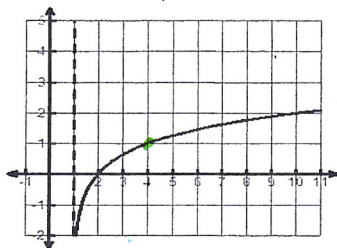
exponential

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

log

7. Write the equation based on the graph.

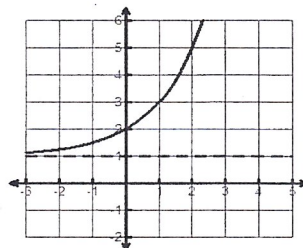
(2,0)
(4,1)



$$y = \log_3(x-1)$$

8. Write the equation based on the graph.

(0,2)
(1,3)
(2,5)



$$y = 2^x + 1$$

State the domain and range. + asymptote. increasing or decreasing

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

Dom $(-\frac{1}{2}, \infty)$ $x = -\frac{1}{2}$
Range $(-\infty, \infty)$ dec.

10. $y = \log_3(5x-6) - 2$

Dom $(\frac{6}{5}, \infty)$ $x = \frac{6}{5}$
Range $(-\infty, \infty)$ inc.

11. $y = 2^{-x+3} - 5$

Dom $(-\infty, \infty)$ $y = -5$
Range $(-5, \infty)$ dec.

12. $y = -12^{x+3} - 17$

Dom $(-\infty, \infty)$ $y = -17$
Range $(-\infty, -17)$ dec.

13. $y = \log_3(-2x-7) + 1$

Dom $(-\infty, -\frac{7}{2})$ $x = -\frac{7}{2}$
Range $(-\infty, \infty)$ dec.

14. $y = -5^{-x+1} - 23$

Dom $(-\infty, \infty)$ $y = -23$
Range $(-\infty, -23)$ inc.

Solve the equations. Round to 3 decimal places when necessary.

15. $\left(\frac{1}{4}\right) = 16^{x+3}$
 $4^{-1} = (4^2)^{x+3}$
 $-1 = 2x+6$

$-7 = -2x$
 $x = \frac{7}{2}$

16. $2^{x+1} = 5^{x-3}$
 $\log_2 5^{x-3} = x+1$
 $(x-3)\log_2 5 = x+1$
 $\log_2 5x - 3\log_2 5 = x+1$
 $x(\log_2 5 - 1) = 1 + 3\log_2 5$
 $x = \frac{1 + 3\log_2 5}{\log_2 5 - 1}$
 $x \approx 6.026$

17. $\ln x = 1 - \ln(x-2)$
 $\ln x + \ln(x-2) = 1$
 $\ln x^2 - 2x = 1$
 $x^2 - 2x = e$

$x^2 - 2x - e = 0$
 $\frac{2 \pm \sqrt{4+4e}}{2}$
 $x = \frac{2 \pm \sqrt{4+4e}}{2}$
 $x = 2.93$

18. $\ln(x+5) = \ln(x-1) + \ln(x+1)$
 $x+5 = x^2 - 1$
 $0 = x^2 - x - 6$
 $(x-3)(x+2)$
 $x = 3$ ~~$x = -2$~~

19. $6.5 \log_5 3x = 20$
 $\log_5 3x = \frac{20}{6.5}$
 $5^{\frac{20}{6.5}} = 3x$

$x \approx 47.158$

20. $\frac{1}{4}(4)^{2x} + 1 = 5$
 $4^{2x} = 16$
 $\log_4 16 = 2x$

$2 = 2x$
 $x = 1$