

8.3 PART 2

Feb 7-4:01 PM

GO COUGARS!



WARM UP *Pls get out your HW.*
Evaluate:

1) $\log_2 16 = 4$

$$\log_2 16 = x$$

$$2^x = 16 \rightarrow 2^x = 2^4$$

$$x = 4$$

2) $\log_8 8 = 1$

4) $\log_{\frac{1}{2}} \frac{1}{2} = 1$

5) $\log \frac{1}{1000}$

$$\log_{10} 1000^{-1} = x$$

$$10^x = 10^{-3} \quad x = -3$$

3) $\log_2 \frac{1}{4} = x$

$$2^x = \frac{1}{4}$$

$$2^x = 4^{-1}$$

$$2^x = (2^2)^{-1}$$

$$2^x = 2^{-2} \quad x = -2$$

6) $\log_{81} 9 = x$

$$81^x = 9$$

$$9^{2x} = 9^1$$

$$2x = 1$$

$$x = \frac{1}{2}$$

Feb 2-9:51 PM

8.3 Part I - p. 450

6. $\log_7 49 = 2$

7. $3 = \log 1000$

8. $\log_5 625 = 4$

9. $\log_{10} \frac{1}{10} = -1$

10. $2 = \log_8 64$

11. $\log_{\frac{1}{2}} 4 = -2$

12. $3 = \log_{\frac{1}{3}} \left(\frac{1}{27}\right)$

13. $-2 = \log 0.01$

14. 4

15. $\frac{1}{2}$

16. 1

17. $\frac{3}{2}$

18. 3

19. $\frac{1}{2}$

20. undefined

21. 2

22. 5

23. 1

24. 4

25. 3

26. 6.3×10^{-6}

53. $128 = 2^7$

64. $y = 4^x$

65. $y = 0.5^x$

66. $y = 10^x$

54. $0.0001 = 10^{-4}$

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

68. $y = 10^x - 1$

69. $y = 10^{x-1}$

55. $16,807 = 7^5$

70. $y = 10^x + 2$

71. $y = 5^{\frac{x}{2}}$

72. $y = a^x + b$

56. $6 = 6^1$

57. $1 = 4^0$

58. $\frac{1}{9} = 3^{-2}$

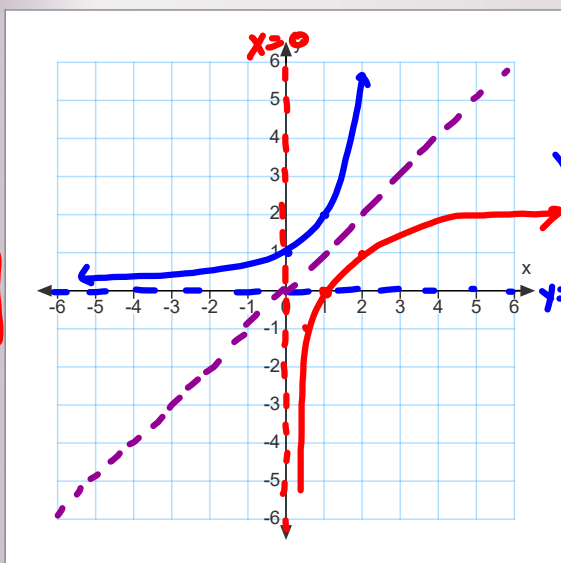
59. $\frac{1}{2} = 2^{-1}$

60. $10 = 10^1$

61. $8192 = 2^{13}$

Mar 2-12:43 PM

8.3 Graphing Logarithmic Functions

A **Logarithmic Function** is the inverse of an exponential functionGraph $y = \log_2 x$ 

By the definition of log,

$$y = \log_2 x$$

 $y = ab^x$ is the inverse of $y = 2^x$
 $a=1$ $b=2$ Asymptote is the x-axis in $y = 2^x$
so what is the asymptote of
 $y = \log_2 x$?Two points on
parent function are:

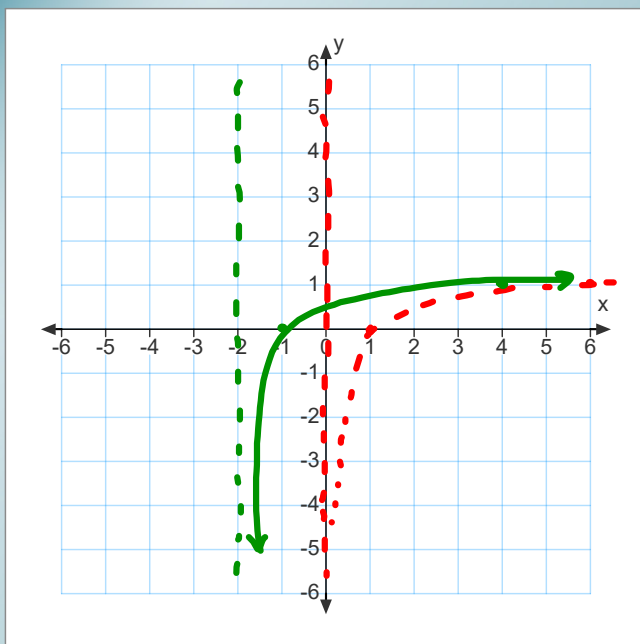
$$(1,0)(2,1) \Rightarrow (1,0)(b,1)$$

Domain and Range?

$$(0, \infty) (-\infty, \infty)$$

Aug 14-10:23 AM

Graph $y = \log_6(x + 2)$ changes HA
 left 2 $(1, 0)$ $(b, 1)$



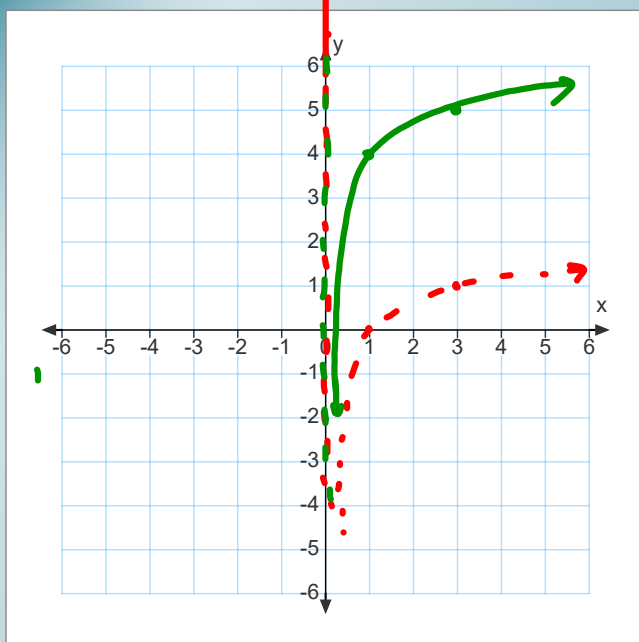
Two points on
 parent function are:
 $(1, 0)$ $(b, 1)$

Domain and Range?

$D: (-2, \infty)$
 $R: (-\infty, \infty)$

Aug 14-8:25 AM

Graph $y = \log_3(x) + 4$



Two points on
 parent function are:

$(1, 0)$ $(3, 1)$
 $y + 4$ $(1, 4)$ $(3, 5)$

Domain and Range?

$D: (0, \infty)$
 $R: (-\infty, \infty)$

Aug 14-8:25 AM

Graph $y = \log_5(x - 3) + 2$

What are the reference points on the parent function?
click here 1st

What does the -3 and +2 do to the parent function log graph?
click here 2nd

Two points on parent function are:
 $(1, 0)$ $(5, 1)$
 $x+3$ $(4, 2)$ $(8, 3)$
 $y+2$ **Domain**
 $(3, \infty)$ $(-\infty, \infty)$

What is the equation of the new asymptote?
click here 3rd

Feb 24-10:50 AM

Graph $y = -\log_5(x + 1) - 2$

left 1
down 2

What are the reference points on the parent function?
click here 1st

What does the negative in the front of the log do to the graph?
click here 2nd

Two points on parent function are:
 $(1, 0)$ $(5, 1)$
Domain and Range?
 $(-1, \infty)$ $(-\infty, \infty)$

What is the equation of the new asymptote?
click here 3rd

Feb 24-10:50 AM

GO COUGARS!



Graphing Logarithms

WB pg. 74

Be sure to put your graphs on

WB pg. 75

Aug 29-11:17 AM