

Algebra 2
Unit 5 Review #1

Name _____
Row# _____ **Per** _____

Change to logarithmic form:

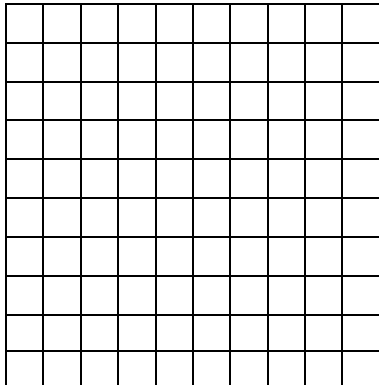
1. $3^4 = 81$ 2. $\left(\frac{1}{4}\right)^{-1} = 4$
 3. $11^{-2} = \frac{1}{121}$ 4. $15^1 = 15$

Change to exponential form:

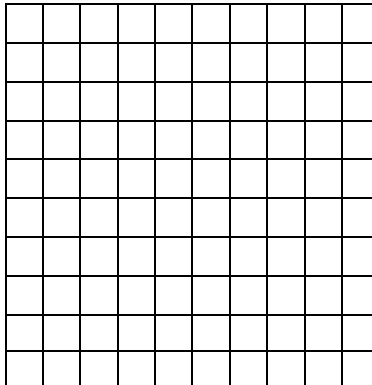
5. $\log_6 216 = 3$ 6. $\log_{1/4} 16 = -2$
 7. $\log_{16} \frac{1}{4} = -\frac{1}{2}$ 8. $\log 1 = 0$

Sketch the graphs and answer the following questions.

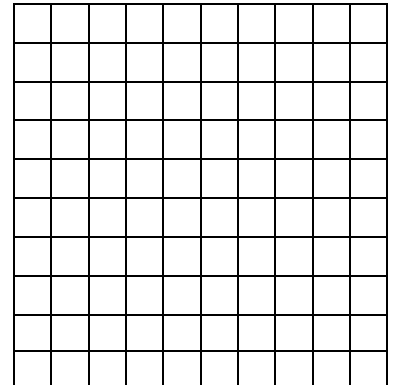
9. $f(x) = 3^x + 1$



10. $f(x) = \ln(x + 1)$



11. $f(x) = \frac{1}{2} \cdot 10^{-x+1}$



Domain _____

Domain _____

Domain _____

Range _____

Range _____

Range _____

y-intercept? _____

y-intercept? _____

y-intercept? _____

End behavior? _____

End Behavior? _____

End Behavior? _____

Describe the transformations for each of the following functions (as compared to the parent function)

$f(x) = 4^x$.

12. $f(x) = -4^{x+1}$

13. $f(x) = 4^{-x} - 1$

14. $f(x) = 4^{x-1}$

15. $f(x) = 4^x + 3$

Solve for x :

16. $\log_2 x = 7$

17. $\log_x 125 = 5$

18. $\log_{1/2} 8 = x$

19. $\log_x 32 = -5$

20. $8^x = \frac{1}{64}$

21. $3^x = 81$

22. $2^x = 8^{x+1}$

23. $9^{x-1} = 27^{3-x}$

24. $\log_8(x_2 - 2x) = \log_8 3$

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

Simplify:

26. $\ln e$

27. $\log 1$

28. $6\log_5 125$

29. $\log_7 7^{-3x}$

Evaluate each function for the given value of x without using a calculator.

30. $f(x) = \log x, x = 10$

31. $f(x) = \ln x, e^{-3}$

32. Daniel invests \$1500 in a bank with an interest rate of 7.2% that is compounded continuously. How much money will be in the bank after 13 years?

33. How long will it take for 500mg of a substance that has a half-life of 10 days to decay to 3.5 mg?