

Algebra 2
Unit 4 Review

Name _____
Date _____ **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. $\log_{16} \frac{1}{4} = -\frac{1}{2}$

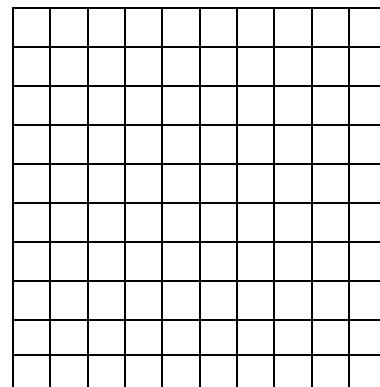
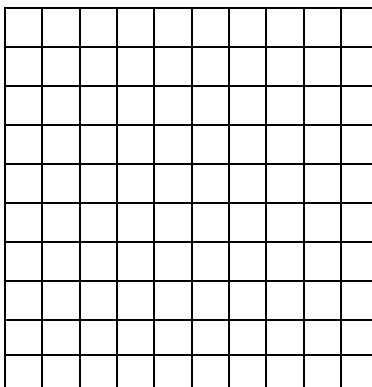
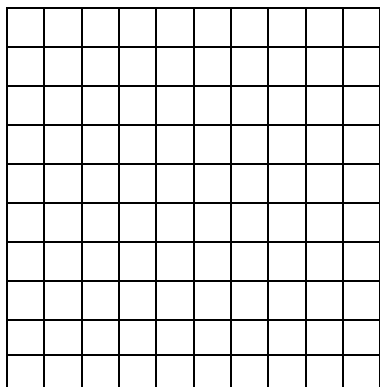
8. $\log 1 = 0$

Sketch the graphs and answer the following questions.

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

10. $f(x) = \log(x+2) - 1$

11. $f(x) = \left(\frac{1}{2}\right)^{x+1}$



Domain _____

Domain _____

Domain _____

Range _____

Range _____

Range _____

Asymptote _____

Asymptote _____

Asymptote _____

Growth or Decay?

x-intercept _____

Growth or Decay?

End Behavior:

End Behavior:

Describe the transformations for each of the following functions (as compared to the parent function $f(x) = 4^x$).

12. $f(x) = 4^{x+1} - 7$

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

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

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

Simplify:

16. $\ln e$

17. $\log 1$

18. $6\log_5 125$

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

20. $\log_4 64$

21. $\ln(e^4)$

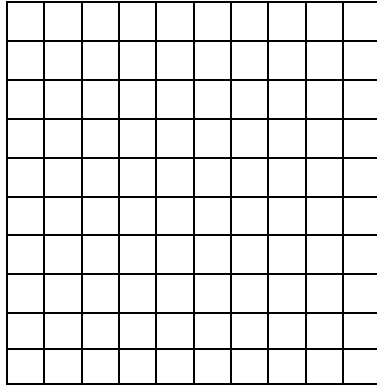
22. $4\ln(e^2)$

23. $2\log 100$

24. Let $f(x) = \log_3 x$.a) Complete the table of values using $f(x)$.

x	1/9	1/3	1	3	9
y					

b) Graph the points.



equal to.

c) Without using a calculator, state what $f(27)$ would bed) Without using a calculator, what is the value of f when $x = 1/27$?e) Between what two integers is the value of $f(70)$? Explain your answer.**Decide if each problem could be solved using an exponential model. Explain why or why not.**

25. Martin borrows \$5500. The rate is set at 6% with continuous compounding.

A. How much does he owe at the end of 2 years?

B. Martin found a bank with a better interest rate of 5.5%. How much less does he owe at the end of 2 years?

26. Gio runs at a constant rate of 6 miles/hour for 5 hours. How far does she run?

26. What is the parent function of $y = 2\ln(x-2) + 3$? What are the transformations?

27. A. $\log_3(x+8) = 2 - \log_3(x)$

b. $\log_4(2x-3) = 2$

c. $\ln 4x = 30$

28. $3(2^{x+4}) = 350$

$5^x = 1/625$

$3e^{5x} = 42$