Algebra 2: Chapter 8 Review

Evaluate each logarithm:

1. $\log_5 125 = x$

2. $\log_3 1 = x$

Write each equation in log form:

3. $4^{-3} = 0.15625$

4. $6^4 = 1296$

Write each log in exponential form:

5. $\log_4 64 = 3$

6. $\log_6 216 = 3$

Condense each to make a single log:

7. $\log(2x-3) = 4\ 3\log 9 - 2\log 3$

8. $\frac{1}{4}(\log_3 a + \log_3 b) - 3\log_3 c$

Expand each log:

9. $\log \frac{3x^3 y}{4z^2}$

10. $\log_3 (2xyz)^4$

11. $\log \frac{3x}{\sqrt[4]{z}}$

Evaluate each expression:

12. $\log 8 + 3\log 5 = x$

13. $4\log_3 2 - 2\log_3 4 = x$

Simplify the expression:

14. $\ln e^{-3}$

Use the properties of logarithms to (a) rewrite the expressions of $\log_{12}2$ and $\log_{12}7$; then (b) use $\log_{12}2 = 0.2789$ and $\log_{12}7 = 0.7831$ to evaluate the following expressions

15. $\log_{12} 14$

16. $\log_{12} (7/2)$

17. $\log_{12} 28$

Find the inverse:

18. $y = \log_3 x$

Algebra 2: Chapter 8 Review
Calculator Portion

Solve each equation:

19. $\log_3 x = 4$

20. $\log_4 (2x+7) - 3\log_4 2 = 3$

21. $81^{2x} = 3^{x+1}$

22. $\log(2x - 3) = 4$

Melissa has $3500 to put in a bank account that yields 3.2% interest. How much money will she have after 4 years if the account compounds interest:

Compound interest: $A = P\left(1 + \frac{r}{n}\right)^{nt}$

Compounded continuously: $A = Pe^{rt}$

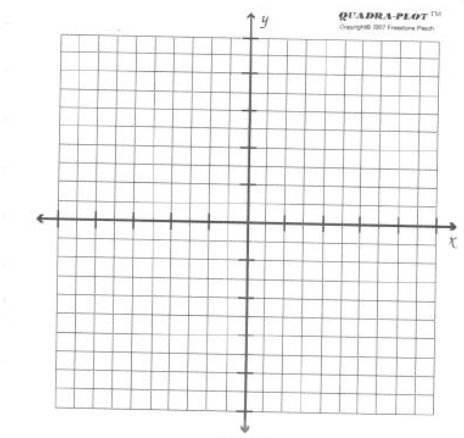
22. Quarterly?

23. Monthly?

25. Continuously?

Bonus:

Graph $y = \log_3 x$. State the domain and range.



Domain:_____

Range:_____