Algebra 2 Chapter 7 Review No Calculator

HW #32: SHOW ALL WORK on a separate piece of paper. These problems should be completed without a calculator.

Evaluate each expression

1. $\log_2 16$
2. $\log_3 81^{2x}$
3. $\log_{\frac{1}{4}} 16$
4. $\log_5 \frac{1}{125}$
5. $\ln e^4$
6. $\log 100$
7. $3^{\log_3 2x}$
8. $\log 10^{5x}$
9. $6^{\log_6 3x}$
10. $\log_{25} \frac{1}{5}$
11. $\log_{\sqrt{5}} 125$
12. $25^{\log_5 y}$

Expand each expression

13. $\log_3 6x^2y^3$
14. $\log_4 \sqrt{49x^5}$
15. $\ln \frac{18x^2y^{-1}}{12xy^3}$

Condense each expression

16. $4(\ln 5 - \ln x) + (4 \ln x - \ln 25)$
17. $\frac{3}{4}\log_5 16 - (2 \log_5 3 - \frac{1}{2}\log_5 25)$
18. $\log 8 - 2 \log 2 + 4 \log x$

Find an equation for the inverse of each function

19. $f(x) = \log_4(x + 3)$
20. $y = e^{x+2}$

Solve each equation

21. $27^{3x+1} = \left(\frac{1}{9}\right)^{5-7x}$
22. $\log_4(4 - 7x) = \log_4(5x - 12)$
23. $5^{2x+3} = 125^{4x}$
24. $\log_3(x - 8) + \log_3 x = 2$
25. $2 \log_6(x - 3) - 9 = -3$

Graph each equation. State the domain, range, intercepts, asymptote, and end behavior

26. $f(x) = 3(4)^{x-2} - 5$
27. $y = 2 \log_3(x + 5) + 4$
28. $y = \log_{\frac{1}{2}}(x + 4)$
29. $f(x) = -\left(\frac{1}{4}\right)^x - 3$

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WHAT TO STUDY FOR CH 7 TEST

7.1/7.2

- Be able to recognize exponential growth vs. exponential decay. Know the models for each.
- Graph exponential growth and decay and state asymptote, domain, and range.
- Know the compound interest formula and how to find account balance, amount deposited, or time when given the other pieces of information.
- Be able to do problems like #33 on Pg 483.
- Know how to do increase in value and decrease in value problems. Word problems from 7.1 & 7.2.

7.3

- Simplify expressions involving e (Pg 495)
- Graph all functions with e as a base.
- Do problems involving continuous compounding
- Word problems from pg 497

7.4

- Be able to evaluate logs without a calculator
- Know the definition of log
- Be able to find inverse of log and exponential equations
- Be able to graph all log functions & give domain, range, and asymptote.

7.5

- Know how to expand logs
- Know how to condense logs
- Know how to use the change of base formula.
- Know how to approximate expressions (Pg 510 #7 – 14)

7.6

- Know how to solve exponential equations
- Know how to solve all of the different types of log equations
- Know what an extraneous solution means & why logs might have one.
- Words Problems #56 – 58