

IM 3

7-4 to 7-6 Practice

Name: _____ Per: _____ Date: _____

Show ALL work in the space provided. Round any decimals to 3 decimal places.

Expand each expression.

1. $\log_6\left(\frac{6}{x}\right)$	2. $\log_3\sqrt[3]{x}$	3. $\log_3(27x)^2$	4. $\log\left(\frac{x}{10}\right)$
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Condense each expression.

5. $\log 3 + \log 5$	6. $\log 9 + \log 6 - \log 3$	7. $\ln 4 - \ln x$	8. $2 \ln x + \ln 8$
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Use the change-of-base formula to rewrite the expression. Then evaluate.

9. $\log_8 24$	10. $\log_3 18$	11. $\log_6 12$	12. $\log_8 24$
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Solve. Be sure to check for extraneous solutions. Give an exact answer and an approximation rounded to 3 decimal places.

13. $4^x = 4^{2x+1}$

14. $9^{4x+1} = 3^{2x-3}$

15. $\frac{2}{3}e^{4x} + 5 = 8$

16. $\frac{1}{4}(10^{3x+1}) - 2 = 5$

17. $\ln 4x = 12$

18. $\log(2x - 1) = 13$

19. $\log 4 + 2 \log x = 6$

20. $\ln 4x + \ln 2 = 4$