LOGS REVIEW WS NAME _____

#1-4. Write as an exponential equation:

1. $\log_4 \frac{1}{64} = -3$ 2. $\log_x 3 = 2$ 3. $\ln 148 = 5$ 4. $\log x = 7$

#5-7. Write as a logarithmic equation:

5. $13^2 = 169$ 6. $6^x = 3.6$ 7. $e^3 = 20.1$

#8-10. Expand using the properties of logs.

8. $\ln 2x^2 y$ 9. $\log \frac{15x}{\sqrt{y}}$ 10. $\log_2 \frac{z}{x^3 y}$

#11-13. Condense using the properties of logs.

11. $\log_8 5 + \log_8 3$ 12. $\frac{1}{3}\log x - \log 2$ 13. $\ln 3 - 4\ln x - \frac{1}{2}\ln y$

#14-17. Solve the following equations

14. $8^{2x-7} = 8^{x+4}$ 15. $2^{2x+3} = 16$ 16. $4^x = \frac{1}{256}$ 17. $\left(\frac{1}{9}\right)^{x+1} = 27^{2x-4}$

#18-27. Evaluate the following

18. $\log 10000$ 19. $\log_3 \frac{1}{243}$ 20. $\log_{25} 5$ 21. $\log_9 1$ 22. $5^{\log_5 4}$

23. $\ln e^{1.7}$ 24. $\log_8 4$ 25. $e^{\ln 3}$ 26. $\log_4 32$ 27. $\log_{\frac{1}{3}} 27$

#28-30. Rewrite each using the change-of-base formula.

28. $\dfrac{\log_3 12}{\log_3 7}$

29. $\dfrac{\log 15}{\log 2}$

30. $\dfrac{\ln 5}{\ln 8}$

#31-36. Solve the following log equations.

31. $\log_4 x = 3$

32. $\log_{64} x = \dfrac{1}{2}$

33. $\log_2\left(\dfrac{1}{4}\right) = x$

34. $\log_{1/3} x = -2$

35. $\log_x \dfrac{1}{4} = -2$

36. $\log_{25} x = \dfrac{3}{2}$

#37-39. Find each inverse function.

37. $y = \ln(x-3)+4$

38. $y = \log_2 x + 1$

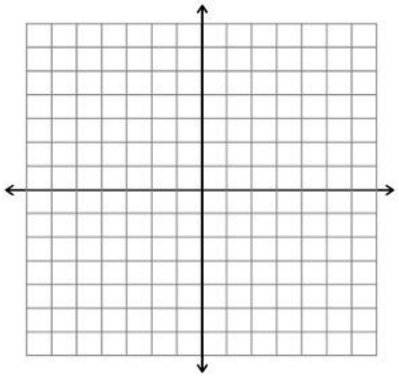
39. $y = 4^x - 3$

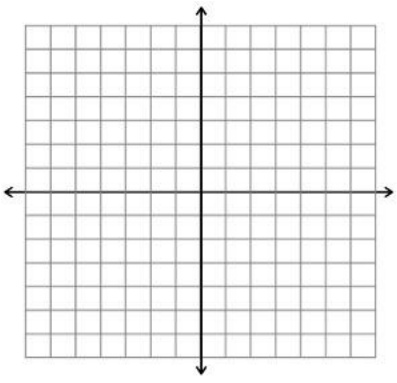
#40-42. Graph each function.

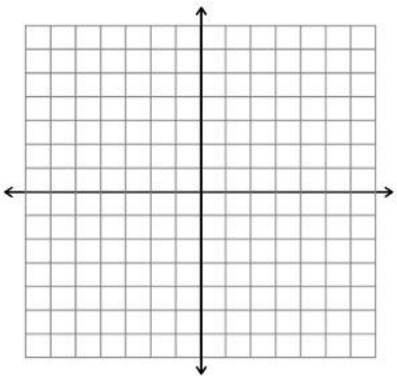
40. $y = \log_2 x$

41. $y = \log_2(x-3)$

42. $y = \log_2(x+2)-4$







LOGS REVIEW WS – ANSWERS

1. $4^{-3} = \frac{1}{64}$
2. $x^2 = 3$
3. $e^5 = 148$
4. $10^7 = x$
2.
5. $\log_{13} 169 = 2$
6. $\log_6 3.6 = x$
7. $\ln 20.1 = 3$
8. $\ln 2 + 2\ln x + \ln y$
9. $\log 15 + \log x - \frac{1}{2}\log y$
10. $\log_2 z - 3\log_2 x - \log_2 y$
11. $\log_8 15$
12. $\log \frac{\sqrt[3]{x}}{2}$
13. $\ln \frac{3}{x^4\sqrt{y}}$
14. 11
15. $\frac{1}{2}$
16. –4
17. $\frac{5}{4}$
18. 4
19. –5
20. $\frac{1}{2}$
21. 0
22. 4
23. 1.7
24. $\frac{2}{3}$
25. 3
26. $\frac{5}{2}$
27. –3
28. $\log_7 12$
29. $\log_2 15$
30. $\log_8 5$
31. 64
32. 8
33. –2
34. 9
35. 2
36. 125
37. $y = e^{x-4} + 3$
38. $y = 2^{x-1}$
39. $y = \log_4(x+3)$