Algebra 2 Name_____

Solving Logarithms WS Key

Solve the equation. Round the result to 2 decimal places.

1. $\ln x = -1$

$\log_e x = -1$

$e^{-1} = x$

$.37 = x$

2. $\ln x = -7$

$\log_e x = -7$

$e^{-7} = x$

$x = .0009$

$X = .001$

3. $\log_4 x = 3$

$4^3 = x$

$64 = x$

4. $\log x - 2 = 0$

$\log_{10} x = 2$

$10^2 = x$

$x = 100$

5. $\log x = -1$

$\log_{10} x = -1$

$10^{-1} = x$

$0.10 = x$

6. $\ln(2x - 1) = 0$

$\log_e(2x-1) = 0$

$e^0 = 2x - 1$

$1 = 2x - 1$

$2 = 2x$

$x = 1$

7. $\ln(3x + 5) = 8$

$\log_e(3x+5) = 8$

$e^8 = 3x+5$

$2980.96 = 3x+5$

$x = 991.99$

8. $\frac{2\ln 3x}{2} = \frac{19}{2}$

$\log_e 3x = \frac{19}{2}$

$e^{19/2} = 3x$

$13359.73 = 3x$

$x = 4453.24$

9. $\log(z - 3) = 2$

$\log_{10}(z-3) = 2$

$10^2 = z-3$

$100 = z-3$

$z = 103$

10. $\frac{4\log(x - 6)}{4} = \frac{11}{4}$

$\log_{10}(x-6) = \frac{11}{4}$

$10^{11/4} = x-6$

$562.34 = x-6$

$x = 568.34$

11. $\frac{2\ln x}{2} = \frac{7}{2}$

$\log_e x = \frac{7}{2}$

$e^{\frac{7}{2}} = x$

$x = 33.12$

12. $\ln 4x = 1$

$\log_e 4x = 1$

$e^1 = 4x$

$2.72 = 4x$

$x = 0.68$

13. $\frac{6\log_4 2x}{6} = \frac{12}{6}$

$\log_4 2x = 2$

$4^2 = 2x$

$16 = 2x$

$x = 8$

14. $\frac{4\log_2(x - 3)}{4} = \frac{16}{4}$

$\log_2(x-3) = 4$

$2^4 = x-3$

$16 = x-3$

$19 = x$

15. $\frac{-2\log_5 7x}{-2} = \frac{2}{-2}$

$\log_5 7x = -1$

$5^{-1} = 7x$

$0.2 = 7x$

$x = 0.03$

16. $\frac{-6\log_3(x - 4)}{-6} = \frac{-24}{-6}$

$\log_3(x-4) = 4$

$3^4 = x-4$

$81 = x-4$

$x = 85$