

Name _____
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Date _____
Algebra II

Converting Between Exponential and Logarithmic Form

Write each of the following in exponential form:

1. $\log_4 256 = 4$

2. $\log_x k = 5$

3. $\log_{12} \frac{1}{144} = -2$

4. $\log_2 \frac{1}{q} = p$

5. $\log 100 = 2$

6. $\ln 50 = x$

7. $\log_{x+2}(x^2 - 5x + 4) = 4$

8. $\log_3(x^2 + 4) = x + 7$

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

10. $\log_{x-9} 2 = x + 1$

11. $\log_2 \left(\frac{x^2 - 4x + 1}{x - 7} \right) = x + 2$

12. $\log_x \left(\frac{x^2 + x - 3}{x + 1} \right) = 6$

Write each of the following in logarithmic form:

13. $9^2 = 81$

14. $x^4 = q$

15. $6^{-3} = \frac{1}{216}$

16. $17^t = d$

17. $e^x = 12$

18. $10^{-2} = \frac{1}{100}$

19. $(x^2 + 5x)^3 = x + 2$

20. $6^{2x+7} = x^2 - 7$

21. $(x+5)^{x^2+8x-1} = 3$

22. $(x^2 + 1)^4 = x + 11$

23. $(x+2)^2 = \frac{x^2 - 6x + 2}{x+1}$

24. $10^4 = \frac{x+2}{x^2+2x-4}$