

Secondary Math III
Solving Logarithmic Equations
Assignment 10.4

Name _____
Period _____

Carnegie Book:

Pg. 409 #1(a,b,c) & Pg. 410 #2a

Solve the logarithmic equation. Check for extraneous solutions. Round to 3 decimal places.

1. $\log_5(5x+9) = \log_5 6x$

2. $\ln(4x-7) = \ln(x+11)$

3. $\frac{1}{3} \log_5 12x = 2$

4. $3 \ln x - 7 = 5$

5. $\ln(1-3x) + 3 = 9$

6. $\log_6 x + \log_6(x-9) = 2$

7. $\log_2(x-3) + \log_2(x-4) = 1$

8. $\ln(x+3) = 1$

9. $\log_2 2x + \log_2 x = 5$

10. $\ln(x+2) - \ln x^2 = 0$

For problems 11-14, use a graphing calculator to solve the equation by finding the x-value of the point of intersection of the graphs (rounded to three decimal places). Draw the graphs.

11. $2^x + 1 = 4 - x$

12. $e^{x-2} = (x - 4)^2$

13. $\ln(x + 2) = x^2 - 4$

14. $\log(x + 1) = -3x + 4$

REVIEW:

Solve each exponential equation for x. Round approximate answers to three decimal places.

15. $3^x = 46$

16. $11^x - 5 = 88$

17. $3 \cdot 18^{x+8} = 95$

18. $14^{6x} - 4 = 66$

19. $9^{x+3} = 9^{-5x-3}$

20. $e^{x^2-3} = e^{-x+17}$

Practice ACT:

21. If $\log_4 x = 2$, what is the square root of x?

- A. 3
- B. 2
- C. 4
- D. 16
- E. 12