

AA4: Solving Logarithm and Exponential Equations

Solve each equation for x. Check your answers and remove any extraneous solutions.

1. $2^{4x-2} = 64$

2. $125^x = 25$

3. $9^{x+2} = \frac{1}{27}$

4. $8^x = 12,143$

5. $9(4^x) = 36,864$

6. $2^{x-1} + 3 = 131$

7. $5^{4x+2} = 37,500$

8. $5(3^{x+4}) = 320$

9. $16^{4x-2} = \frac{1}{64}$

10. $\log_4(3x - 5) = 3$

11. $3 + 4\log_9(2x) = 15$

12. $2\log_5(3x) = 250$

Beware of spicyness....

13. $\log_2(x^2 - 9) = 4$

14. $\log_3((x - 1)(x + 2)) = 2$

15. $\log_{10}(x(x + 15)) = 2$

Find the inverse of each function. Check your answer by graphing, using a table, or function composition.

1. $f(x) = 3^x$

2. $g(x) = \log_3(x)$

3. $h(x) = 5(3)^x$

4. $a(x) = 5\log_6(x + 7)$

5. $b(x) = 7(9)^{x+5}$

6. $c(x) = 12\log_5(x) - 7$

7. $d(x) = .85(1.35)^{2x+3} - 5$

8. $e(x) = 0.125\log_{1.25}(3.5x) - 5$

9. $p(x) = 1234(5)^{6x+7} - 8$