

Solve the following log equations. Check for extraneous solutions!

1. $\log_4 x = 3$

2. $\log_3(2x+5) = 2$

3. $\log_4(2x-1) = \log_4 16$

4. $\log_8(x^2 - 2) = \log_8 7$

5. $\log_2 4 + \log_2 6 = \log_2 x$

6. $\log_3 x - \log_3 12 = \log_3 3$

7. $\log_5 x + \log_5 9 = \log_5 27$

8. $\log_3 4 - \log_3 x = 2$

9. $\log_9 5x = \log_9 6 + \log_9(x-2)$

10. $\log x = 2\log 3 + \frac{1}{3}\log 8$

11. $\log_2 x + \log_2(x+3) = 2$

12. $\log_7(2x+1) - \log_7 5 = \log_7 3$

Solve the following exponential equations. Round your answers to 3 decimal places.

13. $4.6^x = 32.1$

14. $3^{5x} = 8$

15. $7^{x+1} = 12$

16. $e^{x-2} = 11$

17. $125 = 5e^{12x}$

18. $3e^{x+2} - 4 = 10$

Applications.

19. You deposit \$2500 into an account that pays 3.5% annual interest compounded daily. How long will it take for the balance to reach \$3000?

20. An initial deposit of \$4000 is made in a savings account for which the interest is compounded continuously. The balance will triple in 15 years. What is the annual rate of interest for this account?

21. The yield V (in millions of cubic feet per acre) for a forest at age t years is given by $V = 6.7e^{\frac{-48.1}{t}}$. Find the time necessary to have a yield of 1.7 million cubic feet.

LOGS REVIEW WS 2 – ANSWERS

- | | | | | | |
|---------------|------------------|-------------------|------------|-----------|------------|
| 1. 64 | 2. 2 | 3. $\frac{17}{2}$ | 4. ± 3 | 5. 24 | 6. 36 |
| 7. 3 | 8. $\frac{4}{9}$ | 9. 12 | 10. 18 | 11. 1 | 12. 7 |
| 13. 2.273 | 14. 0.379 | 15. 0.277 | 16. 4.398 | 17. 0.268 | 18. -0.460 |
| 19. 5.3 years | 20. 7.3% | 21. 35.07 years | | | |