

**6.6 Solving Exponential and
Logarithmic Equations**

Name _____

Solve.

1. $\log_5 (5x + 10) = 2$

2. $\log_3 (2x + 1) = 3$

3. $\log (3x - 2) = 2$

4. $\log (10x + 20) = 3$

Answers: 1. {3}; 3. {34}

Solve.

5. $\log_{10}(w^2) = 2$

6. $\log_5(y^2 - 2y + 1) = 2$

Solve. Round your answers to 4 decimal places (x.xxxx)

7. $4^x = 9$

8. $3^x = 5$

Answers: 5. $\{\pm 10\}$; 7. $\{\approx 1.5850\}$

Solve. Round your answers to 4 decimal places (x.xxxx)

9. $3^{x-1} = 2$

10. $2^{2x+1} = 5$

11. $e^x = 5$

12. $e^{2x+1} = 0.04$

Answers: **9.** $\{\approx 1.6309\}$; **11.** $\{\approx 1.6094\}$

Solve.

13. $\log_2 x = \log_2 7$

14. $\log_4 (x + 2) = \log_4 8$

15. $\log_7 (x^2 - 2) = \log_7 (x)$

16. $\log_3 (x^2 - 5) = \log_3 (4x)$

Answers: **13.** {7}; **15.** {2}

Solve.

17. $\log_7 (x - 3) = \log_7 (6 - 2x) - \log_7 (3x)$

18. $\log_6 (x - 5) + \log_6 (x + 1) = \log_6 (x + 19)$

Answers: 17. \emptyset