

**Directions:** Solve for  $x$

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|--|---------------------------------------|
| 1. $3^{x-1} = 81$                        | 21. $3^{x-2} = 81$                    |
| 2. $8^x = 4$                             | 22. $\log_3(x) = 5$                   |
| 3. $-14 + 3e^x = 11$                     | 23. $\log_2(2x) = \log_2(100)$        |
| 4. $-6 + \ln(3x) = 0$                    | 24. $\ln(x + 4) = \ln(7)$             |
| 5. $\log(3x + 1) = 2$                    | 25. $\log_3(2x + 1) = 2$              |
| 6. $\ln(x) - \ln(3) = 4$                 | 26. $\log_5(x - 10) = 2$              |
| 7. $2 \ln(3x) = 4$                       | 27. $3^x = 500$                       |
| 8. $5^{x+2} = 4$                         | 28. $8^x = 1000$                      |
| 9. $\ln((x + 2)^2) = 6$                  | 29. $\ln(x) = 7.25$                   |
| 10. $4^{-3x} = 0.25$                     | 30. $\ln(x) = -0.5$                   |
| 11. $2e^{2x} - 5e^x - 3 = 0$             | 31. $2e^{0.5x} = 45$                  |
| 12. $\log_7(3) + \log_7(x) = \log_7(32)$ | 32. $100e^{-0.6x} = 20$               |
| 13. $2 \log_6(4x) = 0$                   | 33. $12(1 - 4^x) = 18$                |
| 14. $\log_2(x) + \log_2(x - 3) = 2$      | 34. $25(1 - e^t) = 12$                |
| 15. $\log_2(x + 5) - \log_2(x - 2) = 3$  | 35. $\log(2x) = 1.5$                  |
| 16. $4 \ln(2x + 3) = 11$                 | 36. $\log_2(2x) = -0.65$              |
| 17. $\log(x) - \log(6) = 2 \log(4)$      | 37. $\frac{1}{3} \log_2(x) + 5 = 7$   |
| 18. $2^x = 64$                           | 38. $4 \log_5(x + 1) = 4.8$           |
| 19. $5^x = 25$                           | 39. $\log_2(x) + \log_2(3) = 3$       |
| 20. $4^{x-3} = \frac{1}{16}$             | 40. $2 \log_4(x) - \log_4(x - 1) = 1$ |