

Section 5 – 1: Solving Exponential Equations

Name _____

Solve for x.

1. $81 = 3^x$

2. $2^x = 8$

3. $4^{x+2} = 64$

4. $27 = 3^{x+4}$

5. $1 = 7^x$

6. $5^x = 5$

7. $125 = 5^{x-2}$

8. $16 = 2^{x+4}$

9. $3^{x+4} = 3$

10. $81 = 9^{x-2}$

11. $1^x = 1^5$

12. $3^{x-2} = 81$

13. $125 = 5^{2x-1}$

14. $2^{3x+4} = 32$

15. $4^{5x+2} = 64$

16. $7 = 7^{2x-1}$

17. $10^{-5x+1} = 1000$

18. $1 = 3^{3x+2}$

19. $9^{2x+5} = 81$

20. $2^{-3x+5} = 64$

21. $\frac{4}{25} = \left(\frac{2}{5}\right)^{x+3}$

22. $\frac{8}{27} = \left(\frac{3}{2}\right)^{x+1}$

23. $\frac{16}{9} = \left(\frac{4}{3}\right)^{2x+2}$

24. $\frac{81}{16} = \left(\frac{3}{2}\right)^{3x}$

25. $\frac{1}{64} = \left(\frac{1}{4}\right)^{3x-2}$

26. $\frac{1}{64} = \left(\frac{1}{2}\right)^{x+3}$

27. $\frac{16}{625} = \left(\frac{2}{5}\right)^{-x}$

28. $\frac{125}{729} = \left(\frac{5}{9}\right)^{-x}$

29. $\frac{8}{125} = \left(\frac{5}{2}\right)^x$

30. $\frac{8}{27} = \left(\frac{3}{2}\right)^x$

31. $\frac{9}{16} = \left(\frac{4}{3}\right)^x$

32. $\frac{16}{81} = \left(\frac{3}{2}\right)^x$

33. $\frac{3}{2} = \left(\frac{27}{8}\right)^x$

34. $\frac{9}{7} = \left(\frac{81}{49}\right)^x$

35. $\frac{4}{3} = \left(\frac{27}{64}\right)^x$

36. $\frac{81}{16} = \left(\frac{8}{27}\right)^x$

37. $\frac{25}{16} = \left(\frac{64}{125}\right)^x$

38. $\frac{16}{9} = \left(\frac{27}{64}\right)^x$

39. $\frac{8}{27} = \left(\frac{81}{16}\right)^x$

40. $\frac{8}{125} = \left(\frac{25}{4}\right)^x$

