

Solve each equation. Round to the nearest ten-thousandth.

23. $8^x = 40$

24. $5^x = 55$

25. $2.9^{a-4} = 8.1$

26. $9^{b-1} = 7^b$

27. $13^{x^2} = 33.3$

28. $15^{x^2} = 110$

Solve each inequality. Round to the nearest ten-thousandth.

29. $6^{3n} > 36$

30. $2^{4x} \leq 20$

31. $3^{y-1} \leq 4^y$

32. $5^{p-2} \geq 2^p$

Express each logarithm in terms of common logarithms. Then approximate its value to the nearest ten-thousandth.

33. $\log_7 18$

34. $\log_5 31$

35. $\log_2 16$

36. $\log_4 9$

37. $\log_3 11$

38. $\log_6 33$

Solve each equation or inequality. Round to the nearest ten-thousandth.

41. $3^x = 40$

42. $5^{3p} = 15$

43. $4^{n+2} = 14.5$

44. $8^{z-4} = 6.3$

45. $7.4^{n-3} = 32.5$

46. $3.1^{y-5} = 9.2$

47. $5^x \geq 42$

48. $9^{2a} < 120$

49. $3^{4x} \leq 72$

50. $7^{2n} > 52^{4n+3}$

51. $6^p \leq 13^{5-p}$

52. $2^{y+3} \geq 8^{3y}$

Solve each equation. Round to the nearest ten-thousandth.

60. $10^{x^2} = 60$

61. $4^{x^2-3} = 16$

62. $9^{6y-2} = 3^{3y+1}$

63. $8^{2x-4} = 4^{x+1}$

64. $16^x = \sqrt{4^{x+3}}$

65. $2^y = \sqrt{3^{y-1}}$

68. **CCSS CRITIQUE** Sam and Rosamaria are solving $4^{3p} = 10$. Is either of them correct? Explain your reasoning.

Sam

$$4^{3p} = 10$$

$$\log 4^{3p} = \log 10$$

$$p \log 4 = \log 10$$

$$p = \frac{\log 10}{\log 4}$$

Rosamaria

$$4^{3p} = 10$$

$$\log 4^{3p} = \log 10$$

$$3p \log 4 = \log 10$$

$$p = \frac{\log 10}{3 \log 4}$$