

Solving Exponential and Logarithmic Functions

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

1) $\log(5p - 4) = \log(2p + 5)$

2) $\log_{16} -4x = \log_{16} -x$

3) $-\log_6(k - 8) = 2$

4) $3 + \log_2 -2m = 7$

5) $-1 + \log_8(n - 8) = 0$

6) $\log_{12} 4x + 10 = 13$

7) $\log_9(x + 7) - \log_9 5 = 1$

8) $\log_7 5x^2 - \log_7 5 = 4$

$$9) \log_9 x - \log_9 (x - 3) = 1$$

$$10) \log_3 8 + \log_3 (x^2 - 5) = 1$$

$$11) \log_6 4 + \log_6 5x^2 = 5$$

$$12) \log_9 4 - \log_9 -2x = 2$$

Solve each equation.

$$13) 3^{3x} = 3^{-2x}$$

$$14) 2^{-2a} = 2^{a+1}$$

$$15) 32^{2n} = \frac{1}{4}$$

$$16) 5^{-2x} = 625$$

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

17) $9 \cdot 16^{-x} = 34$

18) $16^{10n} + 7 = 99$

19) $12^{a-10} + 10 = 56$

20) $7^{k-5} - 2 = 63$

21) $-10 \cdot 16^{a-9} = -86$

22) $5 \cdot 3^{r+10} = 31$

23) $2 \cdot 11^{-3a-8} + 5.1 = 83$

24) $2 \cdot 14^{-n-1} + 8 = 11$

Answers to Solving Exponential and Logarithmic Functions (ID: 1)

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|----------------|-----------------------------------|-----------------------------------|-------------------|
| 1) $\{3\}$ | 2) No solution. | 3) $\{8.0278\}$ | 4) $\{-8\}$ |
| 5) $\{16\}$ | 6) $\{432\}$ | 7) $\{38\}$ | 8) $\{49, -49\}$ |
| 9) $\{3.375\}$ | 10) $\{2.3184, -2.3184\}$ | 11) $\{19.718, -19.718\}$ | 12) $\{-0.0247\}$ |
| 13) $\{0\}$ | 14) $\left\{-\frac{1}{3}\right\}$ | 15) $\left\{-\frac{1}{5}\right\}$ | 16) $\{-2\}$ |
| 17) -0.4794 | 18) 0.1631 | 19) 11.5408 | 20) 7.1452 |
| 21) 9.7761 | 22) -8.3392 | 23) -3.1758 | 24) -1.1536 |