

## EXTRA PRACTICE SOLVING EXPONENTIAL & LOGARITHMIC EQUATIONS

### Exercises

Solve each equation. Round the answer to the nearest hundredth.

- |                                   |                                     |                                  |
|-----------------------------------|-------------------------------------|----------------------------------|
| 1. $2^x = 5$ <b>2.32</b>          | 2. $10^{2x} = 8$ <b>0.45</b>        | 3. $5^{x+1} = 25$ <b>1</b>       |
| 4. $2^{x+3} = 9$ <b>0.17</b>      | 5. $3^{2x-3} = 7$ <b>2.39</b>       | 6. $4^x - 5 = 3$ <b>1.50</b>     |
| 7. $5 + 2^{x+6} = 9$ <b>-4</b>    | 8. $4^{3x} + 2 = 3$ <b>0</b>        | 9. $1 - 3^{2x} = -5$ <b>0.82</b> |
| 10. $2^{3x} - 2 = 13$ <b>1.30</b> | 11. $5^{2x+7} - 1 = 8$ <b>-2.82</b> | 12. $7 - 2^{x+7} = 5$ <b>-6</b>  |

### Exercises

Solve each equation. Round the answer to the nearest thousandth.

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|---|--|
| 13. $\log x = 2$ <b>100</b>             | 14. $\log 3x = 3$ <b>333.333</b>               |
| 15. $\log 2x + 2 = 6$ <b>5000</b>       | 16. $5 + \log(2x + 1) = 6$ <b>4.5</b>          |
| 17. $\log 5x + 62 = 62$ <b>0.2</b>      | 18. $6 - \log \frac{1}{2}x = 3$ <b>2000</b>    |
| 19. $\log(4x - 3) + 6 = 4$ <b>0.753</b> | 20. $\frac{2}{3}\log 5x = 2$ <b>200</b>        |
| 21. $2\log 250x - 6 = 4$ <b>400</b>     | 22. $5 - 2\log x = \frac{1}{2}$ <b>177.828</b> |

### Exercises

Use natural logarithms to solve each equation. Round your answer to the nearest thousandth. Check your answers.

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|--------------------------------|----------------------------------|---|
| 1. $2e^x = 4$ <b>0.693</b>     | 2. $e^{4x} = 25$ <b>0.805</b>    | 3. $e^x = 72$ <b>4.277</b>              |
| 4. $e^{3x} = 124$ <b>1.607</b> | 5. $12e^{3x-2} = 8$ <b>0.532</b> | 6. $\frac{1}{2}e^{6x} = 5$ <b>0.384</b> |

Solve each equation. Round your answer to the nearest thousandth. Check your answers.

- |                                     |   |  |
|-------------------------------------|---|--|
| 7. $\ln(x - 3) = 2$ <b>10.389</b>   | 8. $\ln 2t = 4$ <b>27.299</b>             | 9. $1 + \ln x^2 = 2$ <b><math>\pm 1.649</math></b> |
| 10. $\ln(2x - 5) = 3$ <b>12.543</b> | 11. $\frac{1}{3}\ln 2t = 1$ <b>10.043</b> | 12. $\ln(t - 4)^2 + 2 = 5$<br><b>8.482, -0.482</b> |