

Solve each equation for x. You may use a calculator on #4-21, but you must show all work before using a calculator. Round your answer to the nearest thousandth.

1. $\log_2(\log_2(\log_2 16)) = x$

1

2. $\log(\log_2(\log_3 9)) = x$

0

3. $\log_4(\log_2(\log_2 16)) = x$

 $\frac{1}{2}$ $\log_4(\log_2(4))$ $\log_4 2$ $\frac{1}{2}$

4. $3^x = 12$

2.262

5. $4^x = 7$

1.404

6. $21^x = 7$

.639

7. $e^{2x} = 4$

.693

8. $e^{\frac{1}{2}x} = 6$

3.584

$\ln 6 = \frac{1}{2}x$

$2 \ln 6 = 3.584$

9. $e^x = 2$

.693

10. $\ln x = 7$

1096.633

11. $\ln x = \sqrt{3}$

5.652

12. $\ln x = -5$

.007

13. $3e^{5x} + 2 = 7$

.102

14. $3e^{3x-2} + 4 = 12$ $3e^{3x-2} = 8$

.994 $e^{3x-2} = \frac{8}{3}$

$\ln \frac{8}{3} = 3x-2$

$\frac{-9808+2}{3} = x$

.994

15. $2e^{\frac{x}{3}} - 2 = 4$

3.296

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

3.107

17. $3^x = 4^{x-1}$

4.819

18. $5^{x-1} = 7^{x+2}$ $(x-1)\log 5 = (x+2)\log 7$

-16.350 $x\log 5 - \log 5 = x\log 7 + 2\log 7$
 $x\log 5 - x\log 7 = 2\log 7 + \log 5$

$x(\log 5 - \log 7) = 2\log 7 + \log 5$

$x = \frac{2\log 7 + \log 5}{\log 5 - \log 7}$

x = -16.35

19. $6\ln(4x) - 1 = 14$

3.046

20. $2\ln(x-2) + 3 = 10$

35.115

21. $\frac{\ln x}{3} + 2 = 3$

163.794

$\frac{\ln \frac{x}{3}}{4} = 1$

$\ln \frac{x}{3} = 4$

$e^4 = \frac{x}{3}$

$3e^4 = x$

163.794 = x