

* NO DECIMAL ANSWERS
CLOSED RADICAL
FORM!

NO Calculator!

Precalculus - Chapter 5

Name _____

Solve the given logarithmic equation.

Remember for $\log_a b ; b > 0$

1. $\ln x = 5$
3. $2 \ln x = 7$
5. $2 \ln 4x = 0$
7. $\log(x - 3) = 2$
9. $\ln x + \ln(x - 2) = 1$
11. $\log(x + 4) - \log x = \log(x + 2)$
13. $\ln x + \ln(x + 3) = 1$
15. $\log_4 x - \log_4(x - 1) = \frac{1}{2}$
17. $\log x + \log 14 = \log 98$
19. $\frac{1}{2}(\log_3 80 - \log_3 5) = \log_3 x$
21. $3 \log_3 2 - \log_3 x = \log_3 16$
23. $2 \log x - \log(x - 1) = \log 4$
25. $\log_4 x - \log_4 8 = 1$
27. $\log_4(2x + 1) - \log_4(x - 2) = 1$
29. $\log_4(x - 4) + \log_4 x = \log_4 5$

2. $\ln 2x = -1$
4. $3 \ln 5x = 10$
6. $6 \ln(x + 1) = 2$
8. $\log x^2 = 20$
10. $\ln \sqrt{x + 2} = 1$
12. $\log x - \log(2x - 1) = 0$
14. $\log_2(x + 5) - \log_2(x - 2) = 3$
16. $\log_2 x + \log_2 4 = \log_2 32$
18. $2 \log_5 x - \log_5 5 = \log_5 125$
20. $\log x + \log(x + 1) = \log 12$
22. $\log_4(x - 2) + \log_4 5 = \log_4 70$
24. $\log x + \log 5 = 2$
26. $\log_2(x + 2) + \log_2 5 = 4$
28. $\log_6(x + 1) + \log_6 x = 1$
30. $\log_2(x^2 + 8) = \log_2 x + \log_2 6$

Check your solutions!

Answers to Log Worksheet

- | | |
|--|-------------------|
| 1) $x = e^5$ | 17) 7 |
| 2) $x = \frac{1}{2e}$ | 18) 25 |
| 3) $e^{7/2}$ or $e^3 \sqrt{e}$ | 19) 4 |
| 4) $\frac{e^{10/3}}{5}$ or $\frac{e^3 \sqrt[3]{e}}{5}$ | 20) 3 |
| 5) $\frac{1}{4}$ | 21) $\frac{1}{2}$ |
| 6) $\sqrt[3]{e} - 1$ | 22) 16 |
| 7) 103 | 23) 2 |
| 8) 10^{10} | 24) 20 |
| 9) $1 + \sqrt{1+e}$ | 25) 32 |
| 10) $e^2 - 2$ | 26) $\frac{6}{5}$ |
| 11) $\frac{-1 + \sqrt{17}}{2}$ | 27) $\frac{9}{2}$ |
| 12) 1 | 28) 2 |
| 13) $\frac{-3 + \sqrt{9+4e}}{2}$ | 29) 5 |
| 14) 3 | 30) 2, 4 |
| 15) 2 | |
| 16) 8 | |