PC 12 LG 4 Worksheet (Logarithmic Equations)

Solve for x exactly.

1. $\log x = 2$

2. $\log(x+1) = -1$

3. $\log(\log x) = 1$

4. $\log 1000 = x$

5. $2\log_3 x = 4$

6. $\log 2x = \log 2 + \log 4$

7. $\log 6 - \log 5 = \log x$

8. $\log x - \log 7 = \log 3$

9. $\log_3 x + \log_3 x = \log_3 16$

10. $\log 4 = x \log 2$

11. $\log_9 16 = 4\log_9 x$

12. $\log_2 x + \log_2 3 = 4$

13. $\log_3 x - \log_3 2 = 2$

14. $\log_2(\log_3 x) = 2$

15. $\log_2 x + \log_2(x-2) = \log_2 8$

16. $\log_2 x + \log_2(x-2) = 3$

PC 12 LG 4 Worksheet (Logarithmic Equations)

17. $\log(x+2)+\log(x-1)=1$

18. $\log(3x+2)+\log(x-1)=2$

19. $\log_2 x-\log_2(x-3)=4$

20. $\log_3(x-2)-\log_3(x+1)=\log_3 5$

21. $\log\left(3x^2+2x-4\right)=0$

22. $\log_5(x-3)+\log_5(x+4)-\log_5 x=\log_5 5$

Answer Key

1. 100

2. $\frac{-9}{10}$

3. 10^{10}

4. 3

5. 9

6. 4

7. $\frac{6}{5}$

8. 21

9. 4

10. 2

11. 2

12. $\frac{16}{3}$

13. 18

14. 81

15. 4, reject -2

16. 4, reject -2

17. 3, reject -4

18. 6, reject -5.667

19. $\frac{16}{5}$

20. No Solution, reject $\frac{-7}{4}$

21. 1, $\frac{-5}{3}$

22. 6, reject -2