Math 1513 - College Algebra
Discussion Board Week 7 - Due 2020.03.01

Use properties of logarithms and exponentials to solve for the variable in the equation. Be sure to check your answers by plugging them into the original equation. If your answers do not work, please explain why.

1. $\ln(5x) - \ln(2x - 1) = \ln(4)$

2. $e^{3x-1}e^2 = e^{-2x-1}$

3. $\log(x) = \sqrt{\log(x)}$

4. $\log_2(x + 25) = 1 - \log_2(2x - 7)$

5. $\ln(x + 25) = -2 - \ln(2x - 7)$

6. $2^{4x-5} = 3 \cdot 2^{3x-7}$

7. $e^{4x-5} = 3 \cdot \left(\frac{1}{e}\right)^{-3x+7}$

8. $e^{4x-5}e^{-2x+8} = 3e^{-3x+7}$

9. $\log(x) + \log(3x - 13) = 1$

10. $\log_2(x) + \log_2(3x - 13) = 2$

11. $\log(x^2) = (\log(x))^2$

12. $\log_3(\log_3(x)) = 1$

13. $\log_{\frac{1}{3}}(\log_{\frac{1}{3}}(x)) = -1$

14. $4^{2x-7} = 2^{3x+5}$

15. $4^{2x-7} = 32^{3x+3}$

16. $\log(x + 14) - \log(x) = \log(x + 6)$

17. $\log_3(x - 4) + \log_3(x - 7) = 2$

18. $\ln(5 + x) + \ln(x - 2) = \ln(2)$

19. $2^{x+1} = 3^{x-1}$

20. $5^{3x} = 3^{2x}$

21. $\log(x + 1) = \log(5x) + \log(x - 1)$

22. $\log_3(x + 6) - \log_3(x) = \log_3(5)$

23. $\log(x) + \log(x + 1) = \log(5)$

24. $2\ln(x) - \ln(2) = \ln(6 + x)$

25. $\ln(x - 1) + \ln(3) = \ln(4x)$