AFm Act. #95 "Solving Logarithms using Condensing"

*Solve the following. Several of them are quadratic and may require Quadratic Formula.

1. $\log_2(x+5) - \log_2(3x-1) = \log_2 3$

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

3. $\log_5 3 + \log_5(x-7) = \log_5 4 + \log_5(2x+6)$

4. $\log_2 x - \log_2 5 = \log_2 6 + \log_2 3$

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

6. $\log_3 5 + \log_3 2 + \log_3 x = \log_3 20$

7. $\log 4 + \log 3 - \log x = \log 11$

8. $2\log_5 x - \log_5 5 = 3$

9. $\frac{1}{3}(\log_2 27 + \log_2 64) = \log_2 4 + \log_2 x$

10. $\frac{1}{2}(\log_3 4 - \log_3 x) = \frac{1}{3}\log_3 27 - \log_3(x+1)$

11. $\log 2x + \log(x+5) = \log(3x+15)$

12. $\log_{13}(x-1) - \log_{13}(4) = \log_{13} 6 - \log_{13}(x+1)$

13. $\frac{1}{2}\log_5 25 + \log_5 x - \frac{1}{3}\log_5 64 = 2$

14. $2\log x - 3\log x = \log 5 - \log 9$

15. $\log_2 x + \log_2(x+4) = 2\log_2 x + \log_2 7$

16. $\frac{1}{5}(\log 32 - \log 243) = 2\log x - \log 6$

17. $\log_3 4 - (\log_3 x + \log_3 10) = \log_3 x - \log_3 2$

18. $\frac{1}{6}\log 64 - \log(x+1) = \log(x+1) - \log 3$

19. $\log_4(2x^2 + 11x) = \log_4 40$

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

21. $\log_2(x+5) - \log_2 6 = \log_2 3 + \log_2 6$.

22. $\frac{1}{2}(\log_5 16 - \log_5 x) = \frac{1}{3}\log_5 8 - \log_5(x+1)$

23. $\log x + \log(x+5) = \frac{1}{3}\log 27 - \frac{1}{2}\log 4$

24. $\log_7 x + \log_7(3x-2) = 3\log 2$