Precalculus
Section 3.4

Name_____
Period_____Date_____

Find the exact solution algebraically, and check it by substituting into the original equation.

1. $32\left(\frac{1}{4}\right)^{\frac{x}{3}} = 2$

2. $3 \cdot 4^{\frac{x}{2}} = 96$

3. $3\left(5^{-\frac{x}{4}}\right) = 15$

4. $\log_2 x = 5$

5. $\log_4(1 - x) = 1$

6. $0.98^x = 1.6$

7. $80e^{0.045x} = 240$

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

9. $3 - \log(x + 2) = 5$

10. $5^{x-4} = 25^{x-6}$

11. $7^{3x-4} = 49^{2x+1}$

12. $8^{x-1} = 32^{3x-2}$

13. $27^{4x-1} = 9^{3x+8}$

14. $5.2\log_4 2x = 16$

15. $4\ln(-x) + 3 = 21$

16. $\log 8 + \log x = 2$

17. $\log 9 + \log x = \log 77$

18. $\log x - \log 7 = 1$

19. $\log x - \log 3 = \log 35$

20. $\log x + \log 7 = 1$

21. $\log x - \log 2 = 1$

22. $\log_6(x^2 - 2) - \log_6 8 = 1$

23. $\log_4(x + 2) - \log_4 x = 2$

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

25. $\ln(x + 10) + \ln(x + 1) = \ln 22$

26. $\log_3(x) - \log_3(x + 3) = \log_3 24$

Solve graphically.

27. $e^x + x = 5$

28. $e^{2x} - 8x + 1 = 0$

29. $e^x < 5 + \ln x$

30. $\ln|x| - e^{2x} \geq 3$