7.2 Corrective Assignment – LOGARITHMIC FUNCTIONS Name: _____

Pre-Calculus

For 1-2, Expand the logarithm. (NOT L I K E T H I S ! ! !)	
1. $3 \ln ab^{\frac{1}{2}}c$	2. $\ln \frac{\sqrt{x^2}}{yz}$
For 4-6, Rewrite the expression as a single log. (C o n d e n se!)	
3. 5log a + 2 log b - 3 log c	4. $\frac{\ln x}{4}$ + ln y – 5 ln z

Solve for x using the "Bean method" (change of base formula). Show your work! Go out four places!		
5. $2^x = 14$	6. $8^x = 120$	7. $16^x = 64$
Solve for x by using the "Brust method" (canceling the base with logs). Show your work! Go out four places!		
8. $10^x = 15$	9. $64^x = 1024$	10. $500^x = 50$
Solve for x by using the Sully method (by graphing). Tell the point of intersection used to solve the equation.		
11. $7^x = 17$ x = _____ Point (,)	12. $14^x = 22$ x = _____ Point (,)	13. $20^x = 20$ x = _____ Point (,)

Find x, y, or b as indicated in the following problems.			
14. $log_4 x = 16$	15 $log_{32} 8 = y$	16. $log_b 16 = \frac{1}{2}$	17. $log_b 10 = 0$
18. $log_{81} x = \frac{1}{2}$	19. $log_{\frac{1}{3}} 27 = y$	20. $log_b 1000 = \frac{3}{2}$	
Use logarithms to find the inverse of the given function.			
21. $f(x) = 2^x + 3$	22. $f(x) = 12^x$	23. $f(x) = 5^{x-5}$	
24. $f(x) = \ln(12x)$	25. $\log y = 2\log x - 1$	26. $\log y = \frac{\log x + 6}{6}$	

Answers:

1. $\ln a^3 + \ln c^3 + \ln \sqrt{b}^3$ 2. $\ln x - \ln y - \ln z$ 3. $\log \frac{a^5 b^2}{c^3}$ 4. $\ln \frac{y\sqrt[4]{x}}{z^5}$ 5. x = 3.8074
6. x = 2.3023 7. x = 1.5 8. x = 1.1761 9. x = 1.6667 ≈ $\frac{5}{3}$ 10. x = 0.6295
11. x = 1.4560 (1.4560, 17) 12. x = 1.1713 (1.1713, 22) 13. x = 1 (1, 20)
14. x = $4^{16} = 4294967296$ 15. y = $\frac{3}{5}$ 16. b = 256 17. No Solution 18. x = 9
19. y = -3 20. b = 100 21. $f^{-1}(x) = \frac{\log(x-3)}{\log 2}$
22. $f^{-1}(x) = \frac{\log(x)}{\log 12}$ 23. $f^{-1}(x) = \frac{\log(x)}{\log 5} + 5$ 24. $f^{-1}(x) = \frac{e^x}{12}$ 25. $f^{-1}(x) = 10^{\frac{1}{2}\log x + \frac{1}{2}}$
26. $f^{-1}(x) = 10^{6\log x - 6}$