

Name: _____

Date: _____

Solve the following exponential functions [be sure to check your answers!]:

1. $e^x = 45$

2. $5^x - 21 = 14$

3. $81^{x+1} = 3^{5x+6}$

4. $3e^{2x} - 4 = 44$

5. $3(4^{x-4}) - 8 = 106$

6. $\left(\frac{1}{27}\right)^{x+1} = 3^{6x+6}$

7. $81^{x+1} = 243$

8. $2(3)^{2x} - 5 = 117$

9. $-4e^x + 21 = -39$

10. $4^{3x+9} = \left(\frac{1}{64}\right)^x$

Review!

11. Rewrite in log form $12^{2x} = 126$

12. Rewrite in exponential form
 $\log_y(2x + 1) = z$

13. Evaluate $3^{\log_3 2x}$

14. Evaluate $\log_4 4^{x+1}$

15. Evaluate $\log_3 9^x$

16. Evaluate $\log_2 16$

17. Expand $\ln(a^2 b^3 \sqrt{c})$

18. Expand $\log_4 \frac{ab^3}{c^4 d^{\frac{2}{3}}}$

19. Expand $\log_3 3\sqrt{x+1}$

20. Condense $3\log_2 x - \log_2 y - \log_2 z$

21. Condense $\ln 3 + \ln a + \frac{1}{3} \ln b$

22. Condense
 $2\log_5 x + \log_5 y - \log_5 4 - \log_5 x$