Test Practice                                          Name _____
Exponentials and Logarithms

Show all work and circle final answer.

1. In 2026, there will be a population of 162,795 coyotes. Now (2017) there are 45,000 coyotes running around causing havoc. What is the annual growth rate for this population?

2. Find the inverse of the function, $f(x) = 2^{x+1} + 3$.

3. What is the solution of $12^{3x-2} = 7$?

4. $f(x) = 2^{x-1}$ and $g(x) = 2^{x+7}$ can be written as $f(x - h)$, what is the value of $h$?

5. Summer invested $5000 in a savings bond in 2005. In 2015, the bond had a value of $7500. This savings bond was set up to be given to her daughter, Taliya, when she reached the age of 25. However, being impatient, Taliya decides to withdraw money from the savings bond before she reaches 25 and pays a 2.7% penalty fee. If she withdraws the money in 2026, what is the amount of the penalty?

6. Solve $4^{2x} = 32^{x-2}$.

7. Find the inverse of the function, $y = e^{5x} + 2$.

8. What transformations are used to move $f(x) = \frac{1}{3}(4^{x+2}) - 3$ if the parent function is $g(x) = 4^x$?

9. If you invest $4,000 in an account paying 8.3% compounded continuously, how long will it take for your investment to become $11,000?

10. Find the inverse of the function, $y = \log_7(3x - 6)$.

11. What is the domain and range of $f(x) = 2^{x-3} + 7$ and its inverse?

12. What is the exponential function that is represented by the logarithmic function, $\log_3 y = 5x - 2$?

13. Find the inverse function of $h(x) = 3\ln(7x - 2)$.

14. Leise has a savings account at Sartain Bank International that pays .325% monthly interest compounded monthly. What is the approximate equivalent annual interest rate, compounded annually?

15. If you deposit some money in an account that pays 6.2% interest compounded quarterly. In eight years you have $5,000. What was your initial deposit?