Algebra II Name _____

Exp/Log 4

Simplify the expression.

1. $5^{\log_5 x}$ 2. $8^{\log_8 2x}$ 3. $e^{\ln 7x}$

Find the value for x.

4. $x = \log_{10}(1000)$ 5. $\log_7 x = 3$ 6. $3 = \log_x 64$

7. $\frac{1}{2} = \log_x 7$ 8. $\log_6 1 = x$ 9. $\log_5 x = -2$

Describe the transformation of f represented by g. State the domain, range and equation of the asymptote. Sketch the functions.

10. $f(x) = 3^x$, $g(x) = 3^x + 5$ 11. $f(x) = \log_4 x, \quad g(x) = -3\log_4 - 5$

12. $f(x) = e^x$, $g(x) = e^{(x+1)} - 2$ 13. $f(x) = \ln x$, $g(x) = \ln (x + 2) + 3$

Write a rule for g that represents the indicated transformations of the graph of f.

14. $f(x) = 5^x$, translation 2 units down, followed by a reflection in the y-axis.

15. $f(x) = \ln x$, translation 3 units right and 1 unit up.

16. $f(x) = e^x$, translation 4 units left and make steeper by a factor of 6.

Find the inverse for each of the following functions.

17. $f(x) = 5^x$ 18. $y = \log_6 x$ 19. $f(x) = \ln x$