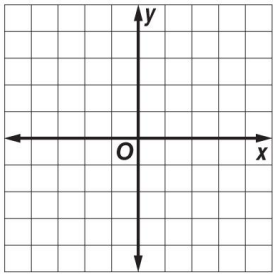
Pre – Calculus Name _____
REVIEW 3.1 – 3.3

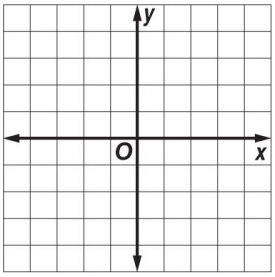
3-1 Practice

Without a calculator, sketch and analyze the graph of each function. State any transformations from the parent function, the domain, range, asymptote equation and end behavior.

1. $f(x) = 2^{x-1}$



2. $h(x) = -e^{x} - 2$



3. In 2000, the number of people in the United States was estimated at 2.81 billion. In 2015 the population was approximately 3.20 billion. Find the growth rate as a percentage rounded to the nearest hundredth.

4. Determine the amount of money in a savings account that provides an annual rate of 4% compounded **a) monthly b) weekly and c) continuously**, if the initial deposit is $1000 and the money is left in the account for 5 years.

a) b) c)

3-2 Practice

Evaluate each expression.

5. $\log_7 7^3$

6. $\log 0.001$

7. $\log_8 4096$

8. $2 \ln e^5$

9. $e^{\ln 0.014x}$

Rewrite the equation in logarithmic form.

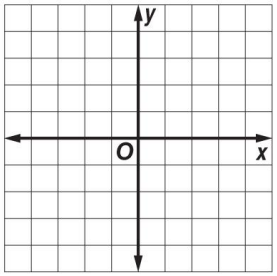
10. $7^2 = 49$

11. $100^{\frac{1}{2}} = 10$

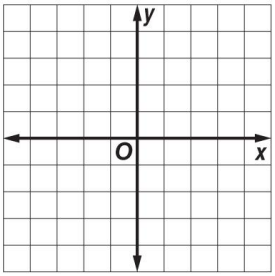
12. $16^{-2} = \frac{1}{256}$

Without a calculator, sketch and analyze the graph of each function. State any transformations from the parent function, the domain, range, asymptote equation and end behavior.

13. $g(x) = \ln(x + 2) - 5$



14. $g(x) = -\ln x + 3$



3-3 Practice

Express each logarithm in terms of ln 10 and ln 3.

15. $\ln 300$

16. $\ln 27000$

17. $\ln \frac{10}{9}$

18. $\ln \frac{729}{10000}$

Expand each expression.

19. $\ln \frac{y(x+1)}{\sqrt[4]{z-5}}$

20. $\ln[(2x)^3(x+1)]$

21. $\ln \frac{3x^4}{\sqrt[3]{7x-3}}$

22. $\ln \frac{(x+1)^3}{\sqrt[3]{x+5}}$

Condense each expression.

23. $\frac{1}{2}\ln(3x - 5y) - \ln(4x + y)$

24. $3\ln(5x + 6) - \frac{1}{2}\ln(x - 4)$

25. $\ln 2x - (\ln 6 - 2\ln x)$

26. $[\ln 8 + \ln x] - 2\ln(x + 4)$

27. $\ln y + \ln 3 - \frac{1}{3}\ln(x) + 2\ln z$

28. $\ln y + \ln x - (\frac{1}{2}\ln x + 3\ln z)$

Use the change of base formula to evaluate each logarithm. Round to the nearest hundredth.

29. $\log_{\frac{1}{2}} \frac{1}{5}$

30. $\log_{100} 200$