

Math 3 – Exponent/Logarithm Review Sheet

Without graphing, determine whether each equation represents exponential growth or exponential decay. Then find the rate of growth or decay and the initial amount (y-intercept).

1. $y = 0.5(1.67)^x$

2. $y = 1.14^x$

3. $y = 2\left(\frac{9}{10}\right)^x$

4. $y = 4.1(0.72)^x$

5. Mr. Andersen put \$1000 into an account that earns 4.5% annual interest. The interest is compounded annually and there are no withdrawals. How much money will be in the account at the end of 30 years?
6. A manufacturer bought a new rolling press for \$48,000. It has depreciated in value at an annual rate of 15%. What is its value 5 years after purchase? Round to the nearest hundred dollars.
7. You place \$900 in an investment account that earns 6% interest compounded continuously. Find the balance after 5 years.

Graph each function as a transformation of its parent function. Identify key point, asymptote, domain, and range.

8. $y = 3^x - 1$

Key point:

Asymptote:

Domain:

Range:

9. $y = (2)^{x-2} + 2$

Key point:

Asymptote:

Domain:

Range:

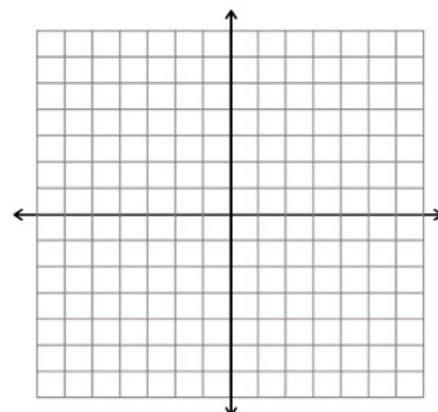
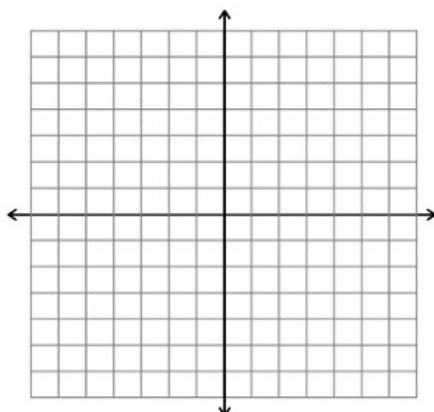
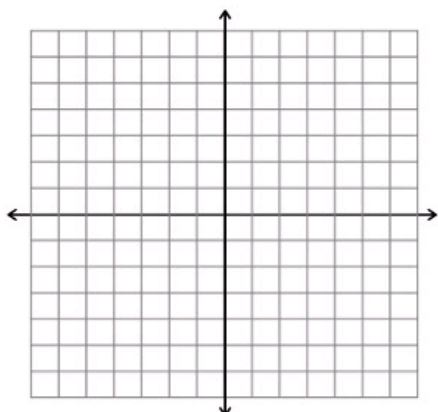
10. $y = \log_4(x + 1)$

Key point:

Asymptote:

Domain:

Range:



Write each equation in logarithmic form.

11. $100 = 10^2$

12. $9^3 = 729$

13. $64 = 4^3$

Evaluate each logarithm.

14. $\log 1000$

15. $\log_4 256$

16. $\log_{27} 9$

Solve each equation.

17. $\log_3 (x + 1) = 4$

18. $e^{\frac{x}{4}} = 5$

19. $\log x + \log 2 = 5$

20. $\ln x - \ln 4 = 7$

21. $6^{3x+2} = 18$

22. $e^{3x}e^{2x} = 20$

24. $5e^{2x} - 1 = 9$

25. $\log 3 + \log x = \log 12$

26. Radium has a half-life of 1660 years. If the initial amount of radium is 200 grams, how much will remain after 500 years?

Simplify.

27. $\ln e^6$

28. $e^{\ln 3}$

29. $\log_2 2$

30. $3^{\log_3 8}$