

**Secondary Math III**  
**Logarithmic Functions**  
**Assignment #9.2**

Name \_\_\_\_\_  
 Period \_\_\_\_\_

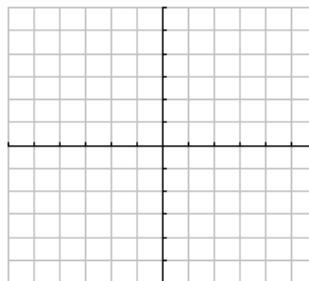
*Fill in the x/y T-chart for the given exponential function. Then flip the x and y values and fill in the x/y T-chart for the logarithmic function, which is the inverse of the exponential function. Finally graph the logarithmic function on the coordinate grid provided.*

1.  $f(x) = 2^x$

$f^{-1}(x) = \log_2 x$

x	y
-1	
0	
1	

x	y

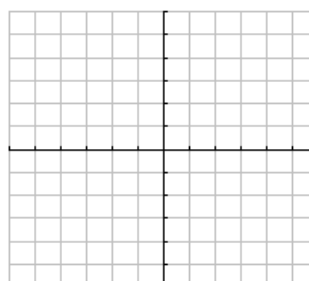


2.  $f(x) = 5^x$

$f^{-1}(x) = \log_5 x$

x	y
-1	
0	
1	

x	y

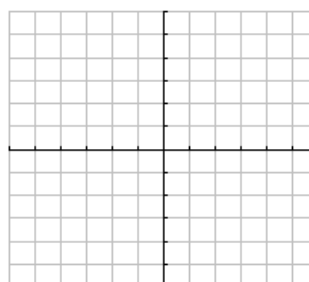


3.  $f(x) = e^x$

$f^{-1}(x) = \ln x$

x	y
-1	
0	
1	

x	y



**Write the following equations in exponential form:**

4.  $\log_{10} 1000 = 3$

5.  $\log_2 16 = 4$

6.  $\log_4 \frac{1}{4} = -1$

7.  $4 = \log_3 81$

8.  $\log_2 \frac{1}{16} = -4$

9.  $\log_9 3 = \frac{1}{2}$

*Write the following equations in logarithmic form:*

10.  $4^3 = 64$

11.  $\frac{1}{8}^{-2} = 64$

12.  $2^{-5} = \frac{1}{32}$

13.  $27^{\frac{1}{3}} = 3$

14.  $5^{-3} = \frac{1}{125}$

15.  $81 = 3^4$

*Evaluate the logarithm without a calculator:*

16.  $\log_9 81$

17.  $\log_{10} \frac{1}{10}$

18.  $\log_{\frac{1}{3}} 9$

19.  $\log_4 16$

20.  $\log_{16} 4$

21.  $\log_6 6$

22.  $\log_8 \frac{1}{64}$

23.  $\log_{49} 7$

24.  $\log \frac{1}{100}$

25.  $\log 1000$

26.  $\log_e 1$

27.  $\ln \frac{1}{e}$

*Evaluate the common or natural base logarithm using a calculator. Round answers to three decimal places.*

28.  $\log 18$

29.  $\ln 0.45$

30.  $\log 6.55$

31.  $\ln e$

32.  $\log 10$

33.  $\ln 0.55$