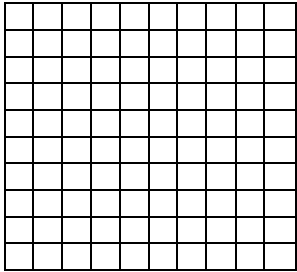


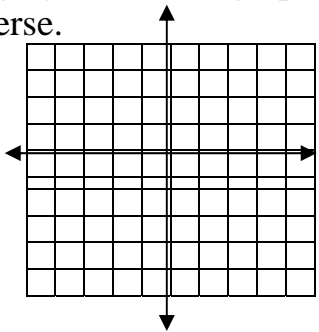
College Algebra  
 Logs and Exponential Functions  
 REVIEW

1. Does this graph show a one-to-one function?



2. Find the inverse of this function:  $y = \frac{2x-3}{5}$

3. Given this graph of a function, roughly sketch the graph of its inverse.

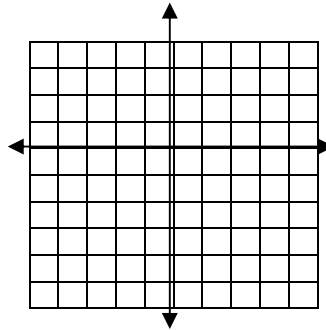


4. Definition of inverse functions:  
 If  $f(g(x)) = x$  and  $g(f(x)) = x$ , then  $f$  and  $g$  are inverse functions.  
 Use this definition to show whether these functions are inverses or not:

$$f(x) = \frac{4x+2}{3}$$

$$g(x) = 3x - 2$$

5. Sketch the graph of  $y = \left(\frac{1}{2}\right)^x$ .



6.  $A = P\left(1 + \frac{r}{n}\right)^{nt}$

\$1000 is deposited in an account paying 4%. How much is in the account in 10 years if the interest is compounded quarterly?

7.  $A = Pe^{rt}$

\$1000 is deposited in an account paying 4%. How much is in the account in 10 years if the interest is compounded continuously?

8. Use the words up, down, left, right, reflection across the x-axis, reflection across the y-axis to describe what happens to the graph of  $y = \log x$ :

a.  $y = \log x + 2$

b.  $y = \log (x-2)$

c.  $y = \log (-x)$

9. Write this equation in logarithmic form:  $3^2 = 9$

10. Write this equation in exponential form:  $\log_x a = b$

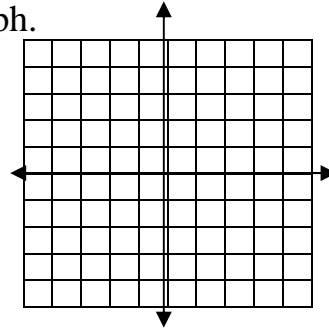
11. Find  $\log_5 125$ .

12. Find  $\log_{10} 10^2$ .

13. Use your calculator to find  $\log 3300$ . Round answer to 4 decimal places.

14.  $y = \log_{1/2} x$

Rewrite this in exponential form, find several points and sketch the graph.



From the graph, tell

a. is the function increasing or decreasing?

b. the domain:

15. Use your calculator to find  $\ln 3300$ . Round answer to 4 decimal places.

16. Find  $\log_7 7$ .

17. Write as a single log:  
 $5 \log_3 x - 2 \log_3 y$

18. Write as the sum, difference or product of logs:

$\log_5 \sqrt[3]{ab} =$

19. Use the change-of-base rule,  
then calculate  $\log_4 3$

20-25 Solve for x analytically.  
Round any nonexact answers to 4  
decimal places.

20.  $\log x = 3.5315$

21.  $5^x = 125^{x-1}$

22.  $3^x = 21$

23.  $\ln(y+2) = \ln(2y-7)$

24.  $\log x = \log (x-4) - 1$

25.  $\ln (x + 2) = 3$