

Review: Functions in General, and Inverse, Exponential and Logarithmic Functions in Particular

MATH 130: Calculus I

Section _____

Name (Print): _____

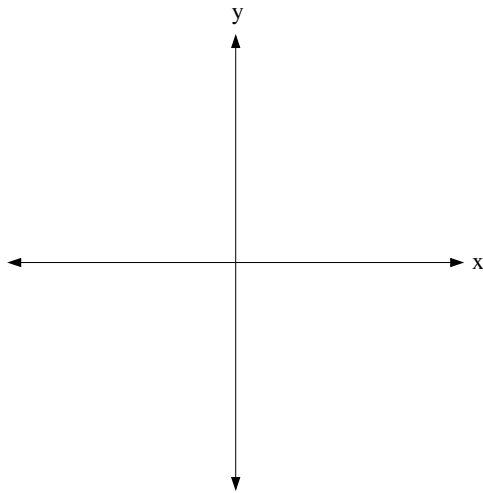
Due: Thursday, January 24, 2019 at the beginning of lab

After reading Sections 1.1-1.3 (pages 1-35 in the text), respond to the following questions on this handout. Be sure to staple your pages together before turning it in. **You must answer all parts to all questions to earn full credit!!!** See the salmon homework guidelines handout for details. You are encouraged to take additional notes wherever you are keeping your class notes. These sections should all be review for you!!!

Response Section

1. State the Vertical Line Test.

2. (a) Draw the graph of $x = y^2$.



(b) Illustrate above that this is NOT a function using the Vertical Line Test. Write one short sentence describing what your illustration shows.

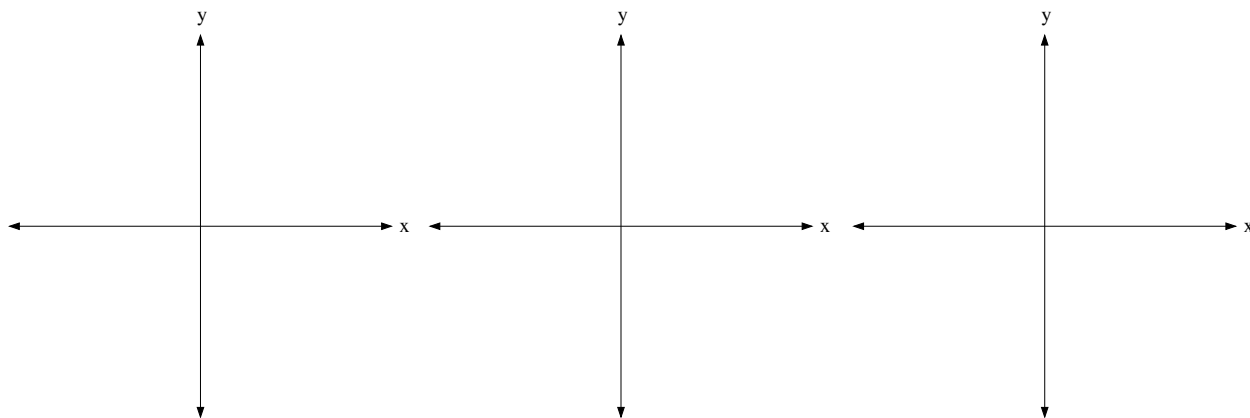
3. Suppose $h(x) = \sin(x^5 - 7)$. What is $f(x)$ and what is $g(x)$ if $h(x) = f(g(x))$? (No explanation necessary, just state f and g .)

4. (a) What is the domain of a function?

(b) Suppose $f(x) = \frac{x^2}{7-x}$. What is the domain of f ? Write it in interval notation (use Appendix A if you need to review this!). Explain in a short sentence why this is the domain.

5. Draw the Venn diagrams in Figure 1.17 on page 14 of the text. Choose a function of each type and add it to your diagram in the proper location (that is, choose a rational function that is not a polynomial and insert it in the circle that includes rational functions but not polynomials, etc.). Your final picture should have a function in each of the parts of the Venn diagrams.

6. You should know the graphs of many functions without using any resources but your brain! Figures 1.22-1.27 show some graphs you should have memorized. On the first set of axes below, draw $f(x) = |x|$. Below the axes, write $f(x)$ as a piecewise function (see page 16). On the second set of axes, draw $-f(x)$. On the third set of axes, draw $-f(x) + 3$. Clearly label the points where the graphs intersect the axes.



7. State the definition of the inverse of a function.

8. (a) Suppose D is the domain and R is the range of a function f that has an inverse f^{-1} .

Then _____ is the domain of f^{-1} and _____ is the range of f^{-1} .

(b) If we know that $f(3) = 7$, then _____.

9. Do all functions have inverses? State the theorem that helps you answer this question.

10. Write down the steps of the procedure for finding the inverse of a function.

Questions/Overview Section

11. Write down at least two questions you have on the reading. If you have NO questions, do exercise 14 in Section 1.3. See the salmon homework guidelines handout for details.

Reflection Section

12. Write two or three sentences reflecting on the process of your recent work in the course. See the salmon homework guidelines handout for details.

Time Section

13. How much time did you spend on this reading assignment? _____