

Functions Part 1 Portfolio (Total points = 12 points)

Things you should know to be successful with the portfolio and the test:

- Instructions for completing: 1. Make a copy of the portfolio 2. Answer all questions and upload artifacts (evidence) 3. Upload to your DP 4. Submit the link on EDMODO for in the Functions Part 1 Unit Portfolio
- **Portfolio Due and Functions Part 1 Test on Thursday March 16th**
- Try the practice problems
- Link to [assignments](#) and [notes](#)
- [How to paste a gif into google docs](#)

Part 1: Unit Summary

Learning Statement

Tell the story of how you made sense of the different concepts throughout this unit. Be sure to hit all of the following talking points, and include all activities/worksheets that are applicable. Be sure to address a habit of a mathematician and one are you might have grappled with. ***You must use artifacts (in class activities and problem sets, notes, class discussions) from this unit as evidence.***

1. **Rational Functions** ($f(x) = \frac{1}{x}$)
 - a. Describe how you made sense of rational functions (vertical asymptotes, y-intercepts)
 - b. Find/Create an appropriate meme or animated gif to describe your preparedness with these types of problems.
2. **Evaluating Functions**
 - a. Describe how you made sense of evaluating functions.
 - b. Find/Create an appropriate meme or animated gif to describe your preparedness with these types of problems.
3. **The Arithmetic of Functions**
 - a. Describe how you made sense of the using the operations adding, subtracting, multiplying and dividing functions.
 - b. Find/Create an appropriate meme or animated gif to describe your preparedness with these types of problems.

Part 1: Unit Summary Answers Here

Beautiful examples (Your assignment work here! Evidence)

Rational Functions ($f(x) = \frac{1}{x}$)

Plug in zero for x to determine y
 $f(0) = \frac{10}{3} = 0$ $f(0) = \frac{10}{3}$ $f(0) = 3.3$
 Equation: $f(x) = \frac{10}{x}$ $x=0$ Value of x that will make denominator equal to zero.

X (input)	f(x) (output)
-5	-0.2
-4	-0.25
-3	-0.3
-2	-0.5
-1	-1
-1/2	-2
-1/3	-3
-1/4	-4
0	Asymptote
1/4	4
1/3	3
1/2	2
1	1
2	0.5
3	0.3
4	0.25

this is an asymptote where the curve never meets the x/y axis
 no y or x intercepts

Find value of x to make the denominator 0.
 $3 - x = 0$ $x = 3$
 $\frac{10}{3-x} = 0$ $x = 3$

Amazing Narratives

$$f(x) = \frac{1}{x}$$

Is the parent form of rational functions, this means this function is in its most basic form. When values are plugged into x it changes the direction of the lines. To determine where the lines are placed in certain equation, plug in zero to x to find the y-axis asymptote. To find the x-axis asymptote you must find the value of x by setting the denominator equal to zero.

To determine other points on the graph you plug in numbers for x. This will help clarify the directions of the lines. The gif I chose represents how once I got over the fact that I was doing math I actually enjoyed learning this new concept and working it out.

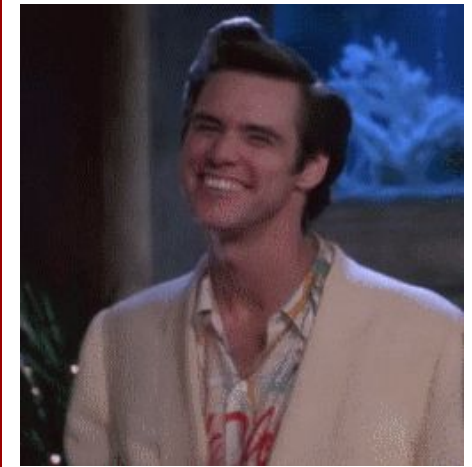
How I feel about my preparedness for:



Evaluating Functions

$$\begin{aligned} 12) \quad & h(t) = 2t + 1 \\ & g(t) = 2t + 2 \\ & \text{Find } (h - g)(t) \\ & (2t + 1) - (2t + 2) \\ & = \boxed{-1} \end{aligned}$$

To evaluate a function you must plug in a value for the variable you are given. Sometimes you will be given a value to solve for and other time you have to simplify the function by combining the like terms. This gif represents how comfortable I am with evaluating functions.



The Arithmetic of Functions

$$\begin{aligned} & \cancel{(n^2 + 4 + 2n)} \cancel{(-3n + 2)} \\ & 2^2 + 4 + 2(2) \cdot -3(2) + 2 \\ & 4 + 4 + 4 \cdot -6 + 2 \\ & 12 \cdot -4 = \boxed{-48} \end{aligned}$$

Understanding how to subtract, add, multiply, and divide functions was relatively easy after I realized that it was similar to combining like terms but slightly more complex. After a while it became less of a challenge and kind of fun. This gif represents my victory dance after efficiently learning all these concepts.



Part 2: Practice Problems for the Test-[ANSWERS TO PRACTICE PROBLEMS](#)

1. Practice finding asymptotes and y-intercepts

$$f(x) = \frac{1}{x-2}$$

$$f(x) = \frac{1}{x^2-49}$$

2. Practice Evaluating Functions

Let $f(x) = 2x - 1$ and $g(x) = x^2 - 4$

$f(0)$	$f(1)$	$f(-1)$	$f(a)$
$g(0)$	$g(-2)$	$g(3)$	$g(t)$
$f(a+5)$	$g(x+h)$	$g(a-1)$	$g(f(x))$

Honor's Challenge: If $f(x) = 3x - 5$, find $\frac{f(x+h) - f(x)}{h}$

3. Practice Arithmetic of Functions

If $f(x) = 4x^2 + 3x + 2$ and $g(x) = 2x^2 - 5x + 2$ find $f+g$, $f-g$, fg , and f/g

THE END