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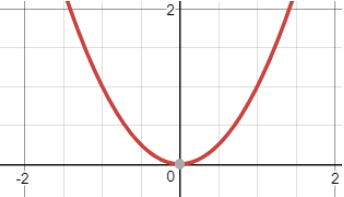
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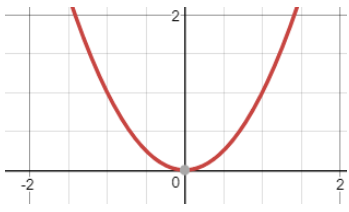
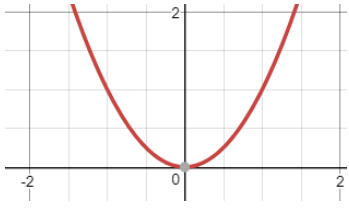
Focused Instruction Unit 2- Family of Functions

Learning Targets: This is an organized list of learning targets to help you prepare for the Unit Test. Please rank each topic using the provided scale.

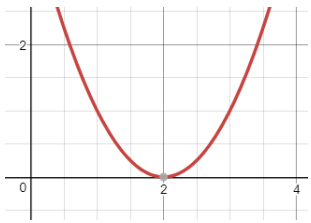
If you are a low rank on a topic you should: look in your notes, do some research on the topic, look in your green book in CHAPTER 4 page 172-236, as a friend who has a higher rank on that topic than you, as a question to the teacher.

Rank yourself and make an example for each Learning target.

Term	Example #1	Example #2	Example #3	Example #4
I can define a function Page 178	A function is a unique relationship for which there is only 1 output for each input.	I can describe the vertical line test		
I can decide if a function is increasing or decreasing as x values increase or decrease. Page 175 #3	<div style="text-align: center;">  </div> <p>We read a graph from left to right. So as x goes from negative infinity to 0 the y values on the graph are decreasing. As x moves from 0 to positive infinity the y values on the graph are increasing.</p>			

<p>I can use the vertical line test Page 178 Extra problems that are good are on page 180 Investigation, 181 #1</p>	 <p>If you draw vertical lines through the parabola the vertical line will only be touching the graph in 1 place. This means it passes the vertical line test and it is indeed a function.</p>			
<p>I can find the domain and range of a function given a graph You must know your parent graphs and the domain and range of these parent graphs. If you know these and your translations, you should be able to sketch a graph to find the new domain and range.</p>	 <p>Domain is referring to x values and range is referring to the y values. So in the above graph we see the following: Domain: all real numbers Range: $y \geq 0$</p>			
<p>I can find the domain and range of a function given an equation</p>	<p>My example: $y = 2(x-3)^2 + 18$ I know that this is a quadratic graph. I know that the vertex is now at (3,18) I know that : D: all real numbers Range: $y \geq 18$</p>			

<p>I can evaluate a function with function notation Notes and Examples can be found on Page 179 Extra problems to be worked can be found on page Page 233 # 2</p>	<p>$f(x) = 4x - 6$ $f(2) = 4(2) - 6 = 2$ So the input is 2 and the output is 2</p>			
<p>I can do function operations...like adding or subtracting 2 functions You did homework on these.</p>	<p>$f(x) = 4x - 5$ and $g(x) = 6x$ What is $f(x) - g(x)$ $4x - 5 - (6x)$ $f(x) - g(x) = -2x - 5$</p>			
<p>I can use translations rules to translate a function We spent a lot of class time on this topic. You did a big graphing assignment. You graphed all the translations of the various parent functions. Page 220</p>	<p>$f(x) = a(x-h)+k$ We are responsible in this unit and here at Washburn for any class after this for knowing what the a,h,k does to the graph. <ul style="list-style-type: none"> a- Changes the initial 1-1 relationship of the graph. h- moves the graph left or right. (x-h) moves the graph to the right (x+h) moves the graph to the left K moves the graph up or down. </p>			

<p>I can use translation rules to write the equation of a new function given the parent function Page 220</p>	 <p>I see that this graph was shifted over 2 to the right from the parent graph . I know that this is a quadratic graph. So the new equation would be $y=(x-2)^2+0$</p>			
<p>I can do composition of a function This can be found on page 225</p>	<p>$f(x) = 3x$ $g(x) = x^2$ Find $f(g(x))$ This is $3x^2$ Find $g(f(x))$ This is $(3x)^2$ which is the same thing as $9x^2$</p>			
<p>I can maximize the volume of an open top box given a single piece of paper (material). This was another major focus. You should be very good at writing any equation to describe this situation.</p>	<p>Note: You should be able to maximize the volume, write the equation and find the zeros in LESS than 10 minutes</p>			
<p>I can solve an absolute value equation Example of this is solving $6= x - 2$</p>	<p>Extra Examples: $18= 3 2x - 3 -24$</p>			

<p>I can find the x intercept of any of our 6 parent functions by using algebra or the graphing calculator to solve $0=f(x)$</p>	<p>Extra Examples: $0=3(x-2)^3 -4$ $0 = 2(x-3)^2 -6$</p>			
<p>I can find the y intercept of any function. This is done by entering the function into your calculator and doing VARS(0) The notation for this is $f(0)$</p>				

Extra Review problems that are good:

Page 234 #4-8

Page 229 #6

Page 229 #2

Page 228 #1