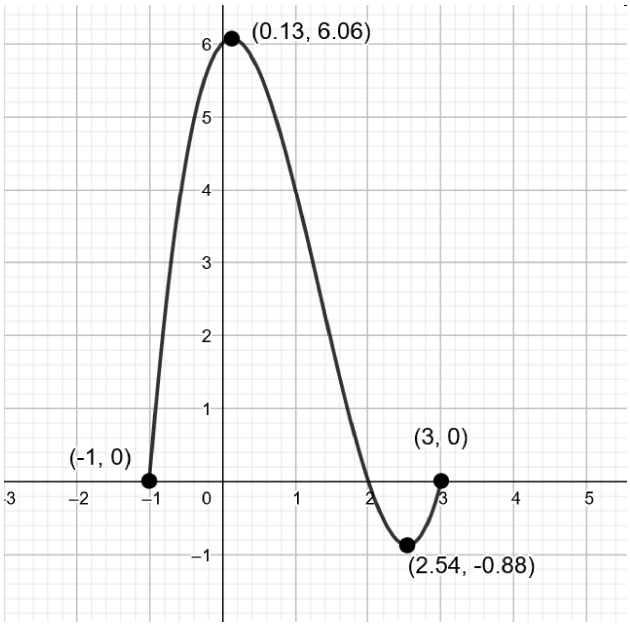
A∞Ω
MATH@TD
MCR3U

11U: Functions - U2 - More Practice

Some Problems
Solutions will be posted tonight

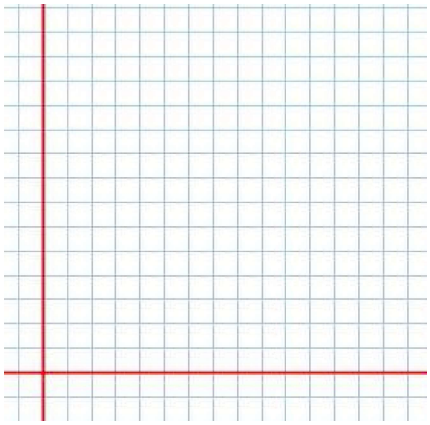
1. State the definition of a function. (*this* **IS** *on the test tomorrow)*

2. What are the domain and range of the graph? Is the graph a function? Why or why not?



3. Consider the function $f(x) = -2x^2 + 5$. Determine
   a) $f(2)$.
   b) $f(2k)$
   c) x, if $f(x) = -3$

4. Ms. Jackson has 32 m of fencing to make a rectangular pen for her rabbits. The wall of her house will serve as one side of the pen, so she will use fencing for only three sides of the rectangle. Express the area of the rabbit pen as a function of its width and then determine the domain and range of the area function (hint: make a sketch). (*nothing this tough on the test, but it's a good q!*)



5. Given the function $g(x) = |x|$, write the **equation** for a transformed function, $f(x)$, after the following transformations: (No sketch required - just the equation)

   horizontal stretch by the factor $\frac{1}{2}$,

   vertical stretch by the factor 3
   Reflection around the y-axis (*a horizontal flip*)
   Shift 4 units right and 2 units down

6. Consider the function $f(x) = 3x^2 - \sqrt{x}$. Determine the range of $f(x)$ if the domain is given by $D_f = \{0,1,4,9\}$.

7. Determine the inverse of the function $g(x) = -3(2x+6)^2 - 1$. Use whichever technique you prefer (brute force or transformations).

8. Given the function $f(x) = 2\sqrt{-x-3}+1$:
   a) State the parent function, and call it $g(x)$
   b) State all transformations applied to the parent function
   c) Sketch the graph of the parent function and $f(x)$ on the same set of axes.

a)

b)

c)