Student-Written Quiz Instructions

Please take a thorough look at the [grading rubric](). This will outline the learning goals and how you will be assessed.

Step 1

- Design 2 *baseline* problems — problems that measure baseline content and skills
- These concepts are covered predominantly on Handouts 2.1, 2.2, and 2.3b
- For this unit this includes:
  - **Concavity:** identifying concave up/concave down/linear relationships in equations, graphs, and phenomena; being able to deduce concavity from a description of a problem (like the Window problems).
  - **Piecewise functions:** going from equation to graph, or from graph to equation.
- The level of these problems will be similar to those you have on your quizzes.
- Please do not be boring, though :) you can measure someone's understanding of these skills in interesting ways other than "Please graph $y=x^2+5x+4$". Try to be thoughtful.

Step 2 — In class on Friday, September 25 (A/B) or Monday, October 28 (G)

- Come with your 2 baseline problems and the answer keys prepared
- Share your problems with each other, do them, and provide feedback to the designer.
- Questions you should focus on:
  - Was it too easy?
  - Are there things that the designer could change to make it a little more abstract or interesting?
  - Are there elements of the problem that could be removed?
  - Are there multiple ways to do it? (this is a good thing)

Step 3

- Design 2 *blended* problems — problems that blend content from different units together into singular problems.
- These usually have a complex concept or diagram for the learner to contend with.
- These problems require extrapolation of information to proceed. Examples include…
  - Using similar triangles that are not given
  - Creating a new series to establish a comparison test
  - Requiring the problem-solver to generalize and prove something in any case
- These problems require multiple steps, and door-ways/gate-ways into these problems are often slightly hidden.
- Examples of these types of problems can be found on 2.3 and on your last problem set.
- The main aim here is to challenge yourself to build problems that are puzzling, interesting, and show how you are making connections between different Mathematical constructs.

Step 4 — In class on Wednesday, September 30 (A/B) or Thursday, October 1 (G)
- Have your 4 problems ready with answer keys
- Come to class with them ready to share with your squad
- We will meet all together and then you will break out to solve each other's blended problems
- Then, you will provide feedback to the designer. Questions you should focus on:
    - Was it too easy?
    - Are there things that the designer could change to make it a little more abstract or interesting?
    - Are there elements of the problem that could be removed?
    - Are there multiple ways to do it? (this is still a good thing)
    - Is there a more efficient and less efficient pathway someone could take to do this problem?
- Students will then take the feedback they are given during this session to finish refining their blended problems and answer keys.

Step 5 - Submission — Monday, October 5 at 5:00pm
- If you need extra time or assistance please ask for it, but this is your formal deadline.
- You need to submit:
    - Two baseline problems
    - Two blended problems
    - Answer keys to all 4 problems
- Work should be written up as though you were administering a test. This means:
    - If you hand write the test, it must be clear and legible, you may also use a google doc to type it up and paste in diagrams.
    - Where you choose to provide diagrams they need to be nicely hand drawn with ruler etc, or drawn on Notability, or Geogebra, or Geometer's sketchpad, or any other platform you like (if you want a lesson on how to do this let me know).
    - The answer key must be thorough and written up clearly and concisely, omitting no elements to the solution.
- You will submit your work on Canvas in a single PDF.