rubric: Growth

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The six questions were assigned 2, 3,3,2,3, 5 points respectively. A surprising number of you omitted the part of question 6 which asked for examples of real problems with various types of growth. E.g. Richter scale is logarithmic.

The key point of question 1) is that to describe the behavior of two functions you have to have some kind of quantifier on the argument. An example would be to say for all x, $f(x)$ is less than $g(x)$. Or for all x in a interval, $f(x)$ is less than $g(x)$. Or for all sufficiently large x, $f(x)$ is less than $g(x)$. I didn't care as long as the answer was really a property of the two functions. Some people gave definitions that didn't correspond with the intuition they described and this lost points.

Problem 3. The second goal of this lesson, which some of you missed, was to really think about what window on the calculator displays some crucial feature of a function (or a pair of functions). A nice window to display that $x^{10} \prec 10^x$ is to let x range from 5 to 15 and y from from 0 to $10^1 1$. Some problem of this sort (that is, requiring a subtle use of calculator windows) will be on the final exam.

Problem 5. Most of you said (in the specific case) the following principle. If $g(x) \prec f(x)$ then $f^{-1}(x) \prec f^{-1}(x)$. But this is best illustrated by actually drawing f and g on the same graph and then showing how they reflect across $y = x$ to reverse the order.