QUIZ 7 - MATH 152 Friday, October 27

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Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [4 points] Do the following:

   (a) Suppose a sequence a_n is defined recursively by

   $$a_0 = 5, \quad a_{n+1} = \frac{1}{3}a_n.$$

   Find a (non-recursive) formula for a_n in terms of n.

   (b) Suppose $a_n = 5n - 1$. Find a recursive formula for a_n in terms of a_{n-1}.

2. [4 points] Compute the limit of the sequence $a_n = \dfrac{5n \log n}{n \log n + n^2}$. (Show all steps!)

2. [4 points] Compute the limit of the sequence $c_n = \dfrac{2n^2 + 7}{5n^2 + 2n} - 3\left(-\dfrac{2}{3}\right)^n$. (Show all steps!)