

QUIZ 7 - MATH 152

Friday, October 25

YOUR NAME: _____

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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. [12 points] Compute the limits of the following four sequences. Every step needs to be justified and all steps shown. You must use all of the criteria listed below (some more than once).

(Function Criterion, Geometric Sequences, Limit Laws on Operations, Continuity)

(a) $\lim_{n \rightarrow \infty} \frac{n}{\sqrt{n^3 + 1}}$

(b) $\lim_{n \rightarrow \infty} e^{\frac{4n}{3n+7}}$

(c) $\lim_{n \rightarrow \infty} \frac{e^n + (-3)^n}{5^n}$

(d) $\lim_{n \rightarrow \infty} (\ln(n^2 + 13) - \ln(n^2 - 7))$