Quiz 6

November 2nd, 2016

Don't forget your name: _____ **Score:** _____ **/30**

1) Decide whether each of the following sequences converge or diverge. If they converge, give the limit. If they diverge to ∞ (or $-\infty$), say so. If they diverge because the limit does not exist, say so.

(5 pts) $a_n = \left\{ \dfrac{n\cos(\pi n)}{\sqrt{n^3 - n}} \right\}_{n=2}^{\infty}$.

(5 pts) $a_n = \dfrac{(2n)!}{e^{2n}}$, $1 \leq n < \infty$.

(5 pts) $a_n = e^{-\sqrt{\frac{n^2+n+1}{n-2}}}$, $n \geq 3$.

2) Evaluate each of the following series.

(5 pts) $\displaystyle\sum_{n=1}^{\infty} \frac{1}{e^n}$

(5 pts) $\displaystyle\sum_{n=1}^{\infty} \frac{2^{2n+1}}{3^{n-2}}$

(5 pts) $\displaystyle\sum_{n=1}^{\infty} \ln\left(\frac{n}{n+2}\right)$

rules:

1. *This will be presentation quality.* Papers with scratch work or large erasures will not be graded, and multiple pages must be stapled together (if you have them).
2. This is due at the beginning of class on Monday, November 7th.
3. Failure to follow the instructions will result in a score of 0.