

Math 112
Quiz 5
Wednesday, April 2, 2008

1. Find the limit of the sequence $\{a_k\}$ defined by $a_k = (1.1)^k$, or explain why the limit does not exist.

2. Find the limit of the sequence $\{a_n\}$ defined by $a_n = n \sin\left(\frac{1}{n}\right)$, or explain why the limit does not exist.

3. Determine whether the sequence $\{a_n\}$ defined by $a_n = \frac{\cos^2 n}{2^n}$ converges or diverges. If the sequence converges, find its limit.

4. Determine whether the series $\sum_{n=1}^{\infty} \frac{n+1}{2n-3}$ converges or diverges. If the series converges, find the sum.

5. Determine whether the series $\sum_{n=2}^{\infty} \frac{2}{n^2 - 1}$ converges or diverges. If the series converges, find the sum.