MATH 220–01 (Kunkle), Quiz 6 Name: _____
10 pts, 10 minutes Mar 14, 2017

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1 (10 pts). Determine whether the series converges or diverges, and if it is convergent, find the sum.

$$\sum_{n=1}^{\infty} \ln\left(\frac{n^2}{3n^2+2}\right)$$

Solution: 1. (Source: 11.2.29) The series $\displaystyle\sum_{n=1}^{\infty} \ln\left(\frac{n^2}{3n^2+2}\right)$ diverges because the limit of its nth term $\displaystyle\lim_{n\to\infty} \ln\left(\frac{n^2}{3n^2+2}\right) = \ln\left(\lim_{n\to\infty} \frac{n^2}{3n^2+2}\right) = \ln\left(\frac{1}{3}\right)$ is not zero.

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