# 408L CLASS PROBLEMS

*Problem* 1. Does $\sum_{n=1}^{\infty}(-1)^n\frac{1}{n^2}$ converge absolutely, converge conditionally, or diverge?

*Problem* 2. Does $\sum_{n=0}^{\infty}(-1)^n\frac{10^{100}n}{n^2+1}$ converge absolutely, converge conditionally, or diverge?

*Problem* 3. Does $\sum_{n=2}^{\infty}(-1)^n\frac{1}{n\log(n)}$ converge absolutely, converge conditionally, or diverge?

*Problem* 4. Does $\sum_{n=0}^{\infty}(-1)^n\frac{n!}{2^n}$ converge absolutely, converge conditionally, or diverge?