Math 100 - Week 9 Recitation (Fall 2013)

For each problem, part (a) is a series with positive terms; determine whether it CONVERGES or DIVERGES.

Part (b) is a series with terms that are not all necessarily positive; determine whether it CONVERGES CONDITIONALLY, CONVERGES ABSOLUTELY, or DIVERGES.

To determine your recitation grade, your group should turn solutions (with work/explanation) to both parts of three problems. **The sum of the problem numbers for the three problems you choose to turn in must be at least 10.** Beyond that, the choice is yours.

1. (a) $\displaystyle\sum_{n=1}^{\infty} \frac{1}{3n^2+1}$ (b) $\displaystyle\sum_{n=1}^{\infty} (-1)^n \frac{1}{3n^2+1}$

2. (a) $\displaystyle\sum_{n=1}^{\infty} \frac{1}{3\sqrt{n}+1}$ (b) $\displaystyle\sum_{n=1}^{\infty} (-1)^n \frac{1}{3\sqrt{n}+1}$

3. (a) $\displaystyle\sum_{n=1}^{\infty} \frac{n!}{3^n(n+3)!}$ (b) $\displaystyle\sum_{n=1}^{\infty} (-1)^n \frac{n!}{3^n(n+3)!}$

4. (a) $\displaystyle\sum_{n=1}^{\infty} \frac{(n!)^2}{3^n(n+3)!}$ (b) $\displaystyle\sum_{n=1}^{\infty} (-1)^n \frac{(n!)^2}{3^n(n+3)!}$

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

6. (a) $\displaystyle\sum_{n=1}^{\infty} \frac{1}{7^n n}$ (b) $\displaystyle\sum_{n=1}^{\infty} (-7)^n \frac{1}{7^n n}$

7. (a) $\displaystyle\sum_{n=1}^{\infty} \frac{\sqrt{n^9+4}}{7^n n}$ (b) $\displaystyle\sum_{n=1}^{\infty} (-2)^{3n} \frac{\sqrt{n^9+4}}{7^n n}$