

# Infinite Series: Things You Should Know

## INFINITE SERIES

1. What is the difference between a sequence and a series?
2. What does it mean to say that  $\sum a_n = s$ ?

## TWO EXAMPLES

3.  **$p$ -series**  $\sum \frac{1}{n^p}$  converges when  $p \dots\dots\dots$  and diverges otherwise.
4. **geometric series**  $\sum_{n=0}^{\infty} ar^n$  converges to  $\dots\dots\dots$  when  $\dots\dots\dots$  and diverges otherwise.

## TESTS FOR POSITIVE SERIES

5. Comparison Test
6. Limit Comparison Test

7. Integral Test

TESTS FOR ANY SERIES

8. Divergence Test

9. Ratio Test

ABSOLUTE VS. CONDITIONAL CONVERGENCE

10. When do you say that a series  $\sum a_n$  is absolutely convergent? When do you say that it converges conditionally?

11. **Useful Fact:** If a series  $\sum a_n$  is absolutely convergent, then it is convergent.

