Calculus Section 9.3 p-Series Test  
-Use properties of the p-series and harmonic series

Homework: page 609 #’s 31 – 38

**Definition of a p-Series**A p-series is a type of series that follows the following pattern:  
   
where p is a positive constant. For p = 1, the series is called the **harmonic series**.

**Convergence of p-Series**The p-series (The proof follows from the Integral test.)  
1) converges if p > 1  
2) diverges if 0 < p ≤ 1

**Proof) Divergence of the Harmonic Series**Show that the harmonic series  diverges.

**Example) Convergent and Divergent p-Series**1)  2)  3) 