Math 16C
Kouba
You Must Know These

1.) $1 + 2 + 3 + 4 + \cdots + n = \dfrac{n(n+1)}{2}$

2.) $1 + r + r^2 + r^3 + r^4 + \cdots + r^n = \dfrac{1 - r^{n+1}}{1 - r}$ for any $r \neq 1$.

3.) $1 + r + r^2 + r^3 + r^4 + r^5 + \cdots = \dfrac{1}{1 - r}$ for $-1 < r < 1$.

4.) $\dfrac{1}{(n+1)^p} + \dfrac{1}{(n+2)^p} + \dfrac{1}{(n+3)^p} + \dfrac{1}{(n+4)^p} + \cdots < \dfrac{n^{1-p}}{p-1}$

for any convergent p-series ($p > 1$).