Summary of Tests for Convergence of Infinite Series

n-th Term Test	$\sum_{n=1}^{\infty} a_n$ converges $\Rightarrow$ $\lim_{n\to\infty} a_n = 0$. $\lim_{n\to\infty} a_n \neq 0$ $\Rightarrow$ $\sum_{n=1}^{\infty} a_n$ diverges.
Geometric series	$\sum_{i=1}^{\infty} ar^{i-1}$ converges if and only if $\lvert r\rvert < 1$. If the series converges, its sum is $\frac{a}{1-r}$
Integral Test	$f(x)$ is continuous, positive, and decreasing. $\sum_{n=1}^{\infty} f(n)$ converges $\Leftrightarrow$ $\int_M^{\infty} f(x)\,dx$ converges (for some M).
p-Series	$\sum_{n=1}^{\infty} \frac{1}{n^p}$ converges $\Leftrightarrow$ $p > 1$.
Comparison Test	$0 < a_n < b_n$. $\sum_{n=1}^{\infty} b_n$ converges $\Rightarrow$ $\sum_{n=1}^{\infty} a_n$ converges. $\sum_{n=1}^{\infty} a_n$ diverges $\Rightarrow$ $\sum_{n=1}^{\infty} b_n$ diverges.
Limit Comparison Test	$a_n > 0$ and $b_n > 0$ $\lim_{n\to\infty} \frac{a_n}{b_n} > 0 \left(\sum_{n=1}^{\infty} a_n \text{ converges} \Leftrightarrow \sum_{n=1}^{\infty} b_n \text{ converges} \right)$ $\lim_{n\to\infty} \frac{a_n}{b_n} = 0$ and $\sum_{n=1}^{\infty} b_n$ converges $\Rightarrow \sum_{n=1}^{\infty} a_n$ converges $\lim_{n\to\infty} \frac{a_n}{b_n} = \infty$ and $\sum_{n=1}^{\infty} b_n$ diverges $\Rightarrow \sum_{n=1}^{\infty} a_n$ diverges
Ratio Test	$\lim_{n\to\infty} \left\lvert \frac{a_{n+1}}{a_n} \right\rvert < 1$ $\Rightarrow$ $\sum_{n=1}^{\infty} a_n$ converges. $\lim_{n\to\infty} \left\lvert \frac{a_{n+1}}{a_n} \right\rvert > 1$ $\Rightarrow$ $\sum_{n=1}^{\infty} a_n$ diverges. $\lim_{n\to\infty} \left\lvert \frac{a_{n+1}}{a_n} \right\rvert = 1$ $\Rightarrow$ can't tell.
Alternating Series Test	$a_n > 0$, decreasing, $\lim_{n\to\infty} a_n = 0$ $\Rightarrow$ $\sum_{n=1}^{\infty} (-1)^{n-1} a_n$ converges.

An additional test for convergence is the root test, but this is not tested on AP Exams.