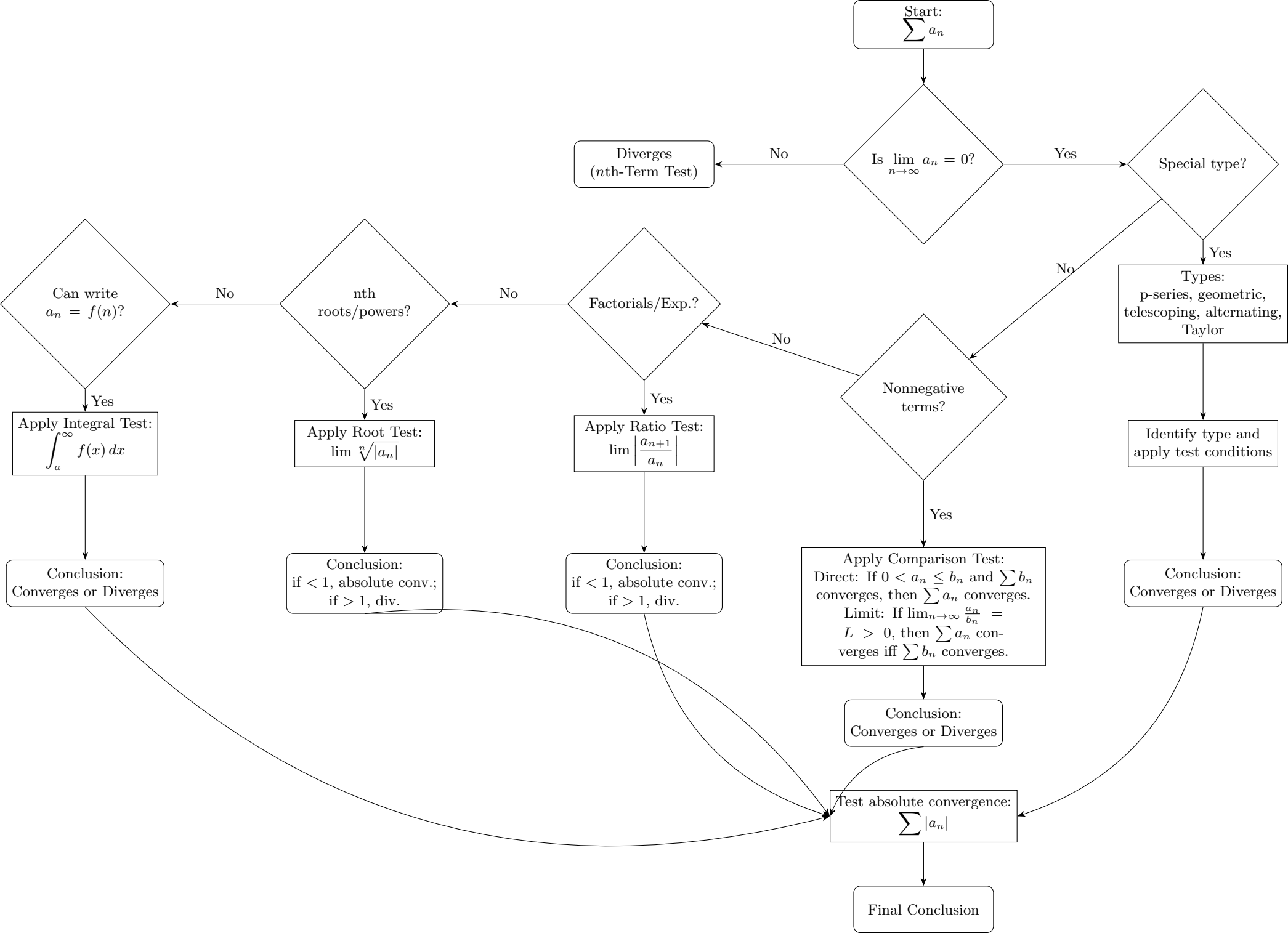
Start: $\sum a_n$
Is $\lim_{n\to\infty} a_n = 0$?
No
Diverges (nth-Term Test)
Yes
Special type?
Yes
Types: p-series, geometric, telescoping, alternating, Taylor
Identify type and apply test conditions
Conclusion: Converges or Diverges
No
Nonnegative terms?
Yes
Apply Comparison Test: Direct: If $0 < a_n \leq b_n$ and $\sum b_n$ converges, then $\sum a_n$ converges. Limit: If $\lim_{n\to\infty} \frac{a_n}{b_n} = L > 0$, then $\sum a_n$ converges iff $\sum b_n$ converges.
Conclusion: Converges or Diverges
No
Factorials/Exp.?
Yes
Apply Ratio Test: $\lim \left|\frac{a_{n+1}}{a_n}\right|$
Conclusion: if < 1, absolute conv.; if > 1, div.
No
nth roots/powers?
Yes
Apply Root Test: $\lim \sqrt[n]{|a_n|}$
Conclusion: if < 1, absolute conv.; if > 1, div.
No
Can write $a_n = f(n)$?
Yes
Apply Integral Test: $\int_a^\infty f(x)\,dx$
Conclusion: Converges or Diverges
Test absolute convergence: $\sum |a_n|$
Final Conclusion