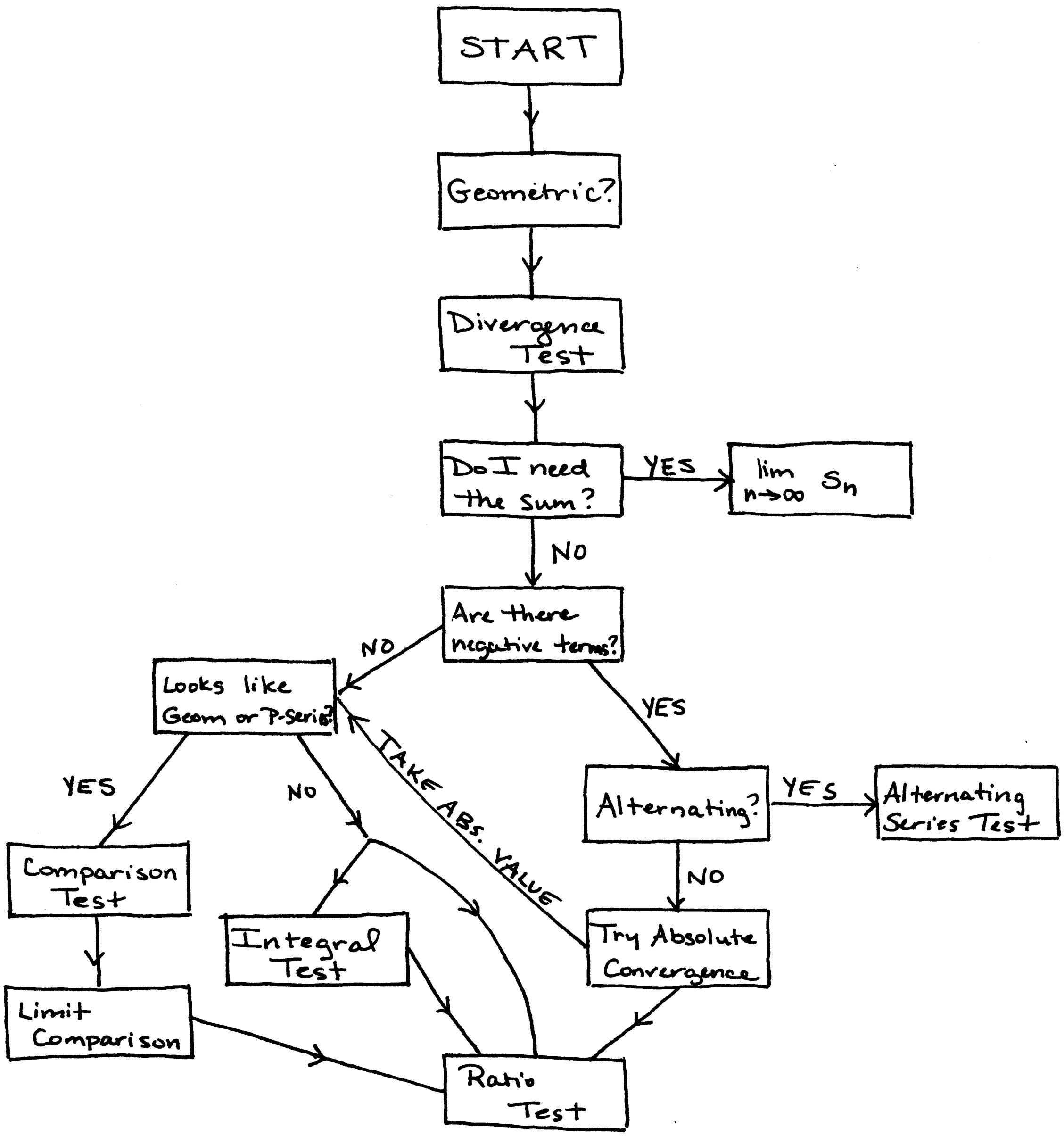
Disclaimer: This is just one way to do this — there are other ways to go about it. If this is helpful, great — if not, feel free to disregard it.



Also useful: If $\sum a_n$ and $\sum b_n$ are both convergent, and c is a constant, then:

$$\sum c a_n = c \sum a_n \qquad \sum (a_n \pm b_n) = \sum a_n \pm \sum b_n$$

3-0235 — 50 SHEETS — 5 SQUARES
3-0236 — 100 SHEETS — 5 SQUARES
3-0237 — 200 SHEETS — 5 SQUARES
3-0137 — 200 SHEETS — FILLER
COMET

Geometric: all n's in powers $\rightarrow \sum_{n=1}^{\infty} ar^{n-1}$ $\quad r<1$ converges, $r \geq 1$ diverges

Divergence: $\lim_{n\to\infty} a_n \neq 0$ then $\sum_{n=1}^{\infty} a_n$ diverges

Find the s_n's: $s_n = \sum_{n=1}^{n} a_n$; $\lim_{n\to\infty} s_n = \text{sum}$ telescoping!

Comparison Test: If a_n looks like geometric or p-series b_n
(positive only)
$\sum b_n$ converges + $a_n \leq b_n \rightarrow$ converges
$\sum b_n$ diverges + $a_n \geq b_n \rightarrow$ diverges

Limit ______: Good for when the inequality goes the wrong way: $\lim_{n\to\infty} \frac{a_n}{b_n} = L$ $\quad 0<L<\infty$ then both $\sum a_n$ and $\sum b_n$ converge or both diverge.
(positive only)

Integral Test: If $f(x)$ is positive, decreasing, and continuous on $(0,\infty)$, and $a_n = f(n)$ then $\sum_{n=1}^{\infty} a_n$ converges if $\int_1^{\infty} f(x)\,dx$ converges, and diverges if the integral diverges
(pos. only)

Alternating Series: If $a_n = (-1)^n b_n$ or $(-1)^{n+1} b_n$, $b_n = |a_n|$ and
(1) $b_{n+1} < b_n$ (decreasing*)
(2) $\lim_{n\to\infty} b_n = 0$

Then $\sum a_n$ converges.
* you may need to look at the derivative!

Absolute Convergence: $\sum a_n$ is absolutely convergent if $\sum |a_n|$ converges.
If $\sum a_n$ is absolutely convergent, $\sum a_n$ converges.

Ratio Test: good for factorials, n's in powers, mixed up terms

$$\lim_{n\to\infty} \left| \frac{a_{n+1}}{a_n} \right| = \begin{cases} L<1 & \text{absolutely convergent (+ so convergent)} \\ 1 & \text{test fails} \\ L>1 & \text{divergent.} \end{cases}$$