Does Σa_n Converge?

Geometric? —Yes→ $-1 < r < 1$?

Geometric? —No→ p-Series?

p-Series? —Yes→ $p > 1$?

p-Series? —No→ Look like p-series?

$-1 < r < 1$? —Yes→ Σa_n Converges

$-1 < r < 1$? —No.→ Σa_n diverges

$p > 1$? —Yes→ Σa_n Converges

$p > 1$? —No.→ Σa_n diverges

Look like p-series? —Yes→ Obvious Inequality?

Look like p-series? —No→ Look like Geometric?

Look like Geometric? —Yes→ Obvious Inequality?

Look like Geometric? —No→ $a_n \to 0$?

Obvious Inequality? —Yes→ Smaller than convergent?

Obvious Inequality? —Yes→ Bigger than Divergent?

Smaller than convergent? —Yes→ Σa_n Converges

Smaller than convergent? —No→ Limit Comparison w/ Σb_n

Bigger than Divergent? —Yes→ Σa_n diverges

Bigger than Divergent? —No→ Limit Comparison w/ Σb_n

Limit Comparison w/ Σb_n → Σb_n Converges?

Σb_n Converges? —Yes→ Σa_n Converges

Σb_n Converges? —No→ Σa_n diverges

$a_n \to 0$? —Yes→ $a_n = (b_n)^n$?

$a_n \to 0$? —No→ Σa_n diverges

$a_n = (b_n)^n$? —Yes→ Root Test

$a_n = (b_n)^n$? —No→ Ratio Test

Root Test → $L = 1$?

Ratio Test —No→ $L < 1$?

Ratio Test → $L = 1$?

$L < 1$? —Yes→ Σa_n Converges

$L < 1$? —No→ Σa_n diverges

$L = 1$? —Yes→ Integral Test

Integral Test → $\int_{1}^{\infty} f(x)\,dx < \infty$?

$\int_{1}^{\infty} f(x)\,dx < \infty$? —Yes→ Σa_n Converges

$\int_{1}^{\infty} f(x)\,dx < \infty$? —No→ Σa_n diverges