

POWER SERIES: $a_0 + a_1x + a_2x^2 + a_3x^3 + \dots = \sum_{k=0}^{\infty} a_k x^k$

A power series is an infinite series, but not every infinite series is a power series

SALAMIN-BRENT ALGORITHM:

initialize: $a_0 = 1$
 $b_0 = \frac{1}{\sqrt{2}}$
 $s_0 = \frac{1}{2}$

loop: $k=1$: $a_1 = \frac{1}{2}(a_0 + b_0) = \frac{1}{2}\left(1 + \frac{1}{\sqrt{2}}\right)$
 $b_1 = \sqrt{a_0 \cdot b_0} = \sqrt{1 \cdot \frac{1}{\sqrt{2}}}$
 $s_1 = s_0 - 2^1(a_1^2 + b_1^2) = \dots$
 $\rho_1 = \frac{2a_1^2}{s_1} \approx 3.187\dots$

$k=2$: $a_2 = \dots$
 $b_2 = \dots$
 $s_2 = \dots$
 $\rho_2 = \dots$

... repeat m times...