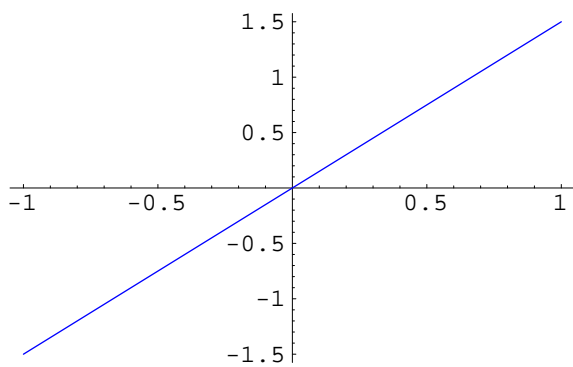
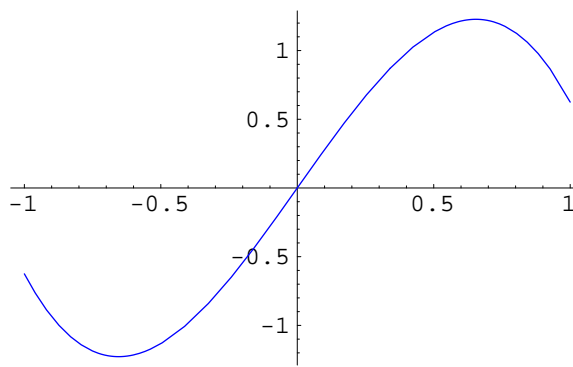


## Legendre Polynomial Expansion of Step Function

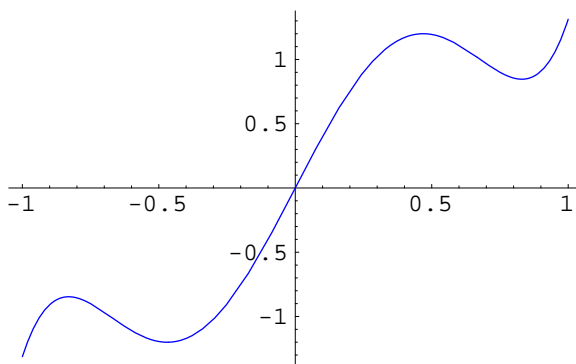
$$f(x) = \begin{cases} +1 & x > 0 \\ -1 & x < 0 \end{cases} = \sum_{l=0}^{\infty} A_l P_l(x), \quad A_l = (-1)^{\frac{1}{2}(l-1)} \frac{(l-2)!!}{(l+1)!!} (2l+1)$$



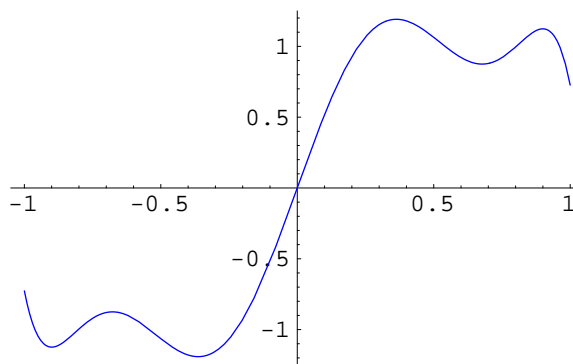
1 term



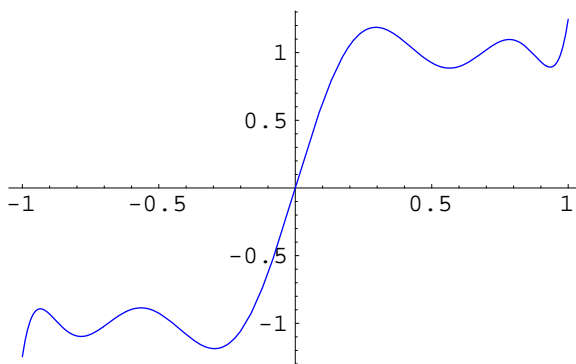
3 terms



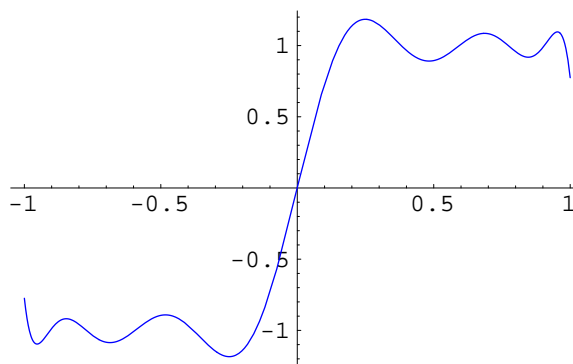
5 terms



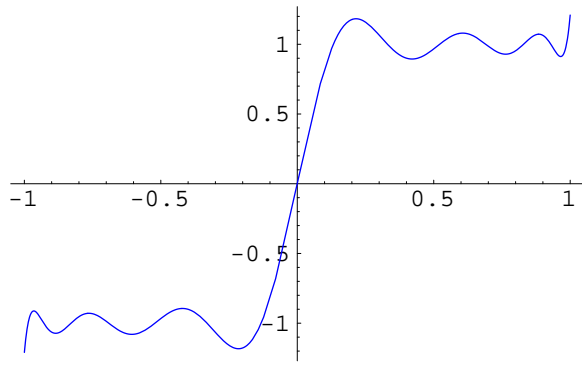
7 terms



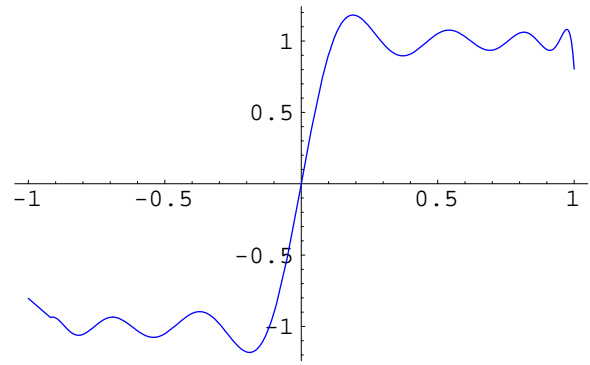
9 terms



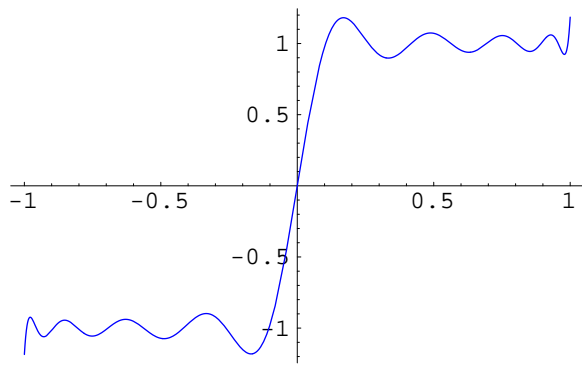
11 terms



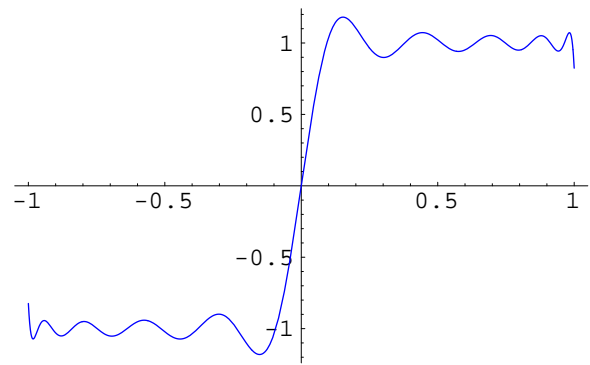
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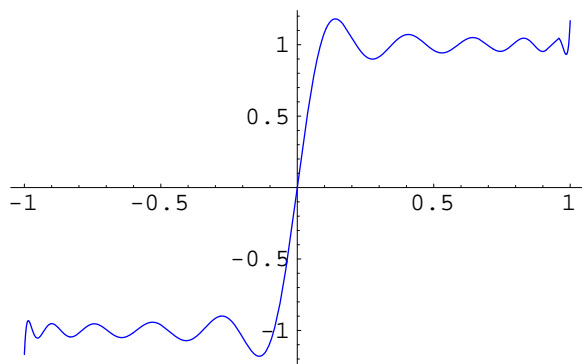
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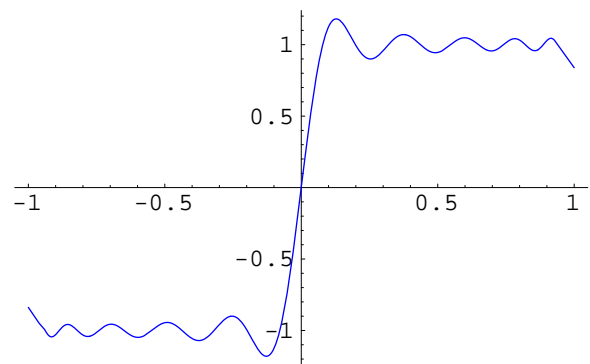
17 terms



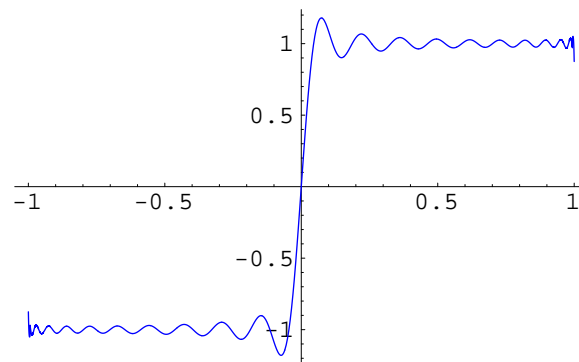
19 terms



21 terms



23 terms



43 terms