DERIVATIVES

function	derivative		function	derivative	
$\sin^{-1}(x)$			$\sinh^{-1}(x)$	$\frac{1}{\sqrt{x^2+1}}$	
$\cos^{-1}(x)$			$\cosh^{-1}(x)$	$\frac{1}{\sqrt{x^2-1}}$	$x>1$
$\tan^{-1}(x)$			$\tanh^{-1}(x)$	$\frac{1}{1-x^2}$	$\lvert x\rvert<1$
$\cot^{-1}(x)$			$\coth^{-1}(x)$	$\frac{1}{1-x^2}$	$\lvert x\rvert>1$
$\csc^{-1}(x)$	$\frac{-1}{\lvert x\rvert\sqrt{x^2-1}}$	$\lvert x\rvert>1$	$\operatorname{csch}^{-1}(x)$	$\frac{-1}{\lvert x\rvert\sqrt{1+x^2}}$	$x\neq 0$
$\sec^{-1}(x)$	$\frac{1}{\lvert x\rvert\sqrt{x^2-1}}$	$\lvert x\rvert>1$	$\operatorname{sech}^{-1}(x)$	$\frac{-1}{x\sqrt{1-x^2}}$	$0<x<1$

SUMS

$$\sum_{i=1}^{n} i^2 = \frac{n(n+1)(2n+1)}{6}$$

$$\sum_{i=1}^{n} i^3 = \frac{n^2(n+1)^2}{4}$$