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Subject: Complex arguments in Bessel functions

Posted by [Ben Carter](#) on Mon, 01 Nov 2004 11:45:41 GMT

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I am attempting to solve an equation in IDL which involves Modified Bessel Functions (using a simple root finding algorithm(newtons method)). The roots to the equation however are complex and IDL's 'beselK(argument, order)' function ignores imaginary numbers when entered so for example gives:  $\text{beselK}(1,0) = \text{beselK}(1+i,0)$  and  $\text{beselK}(i,0)$  gives an error since  $K(x,0) \rightarrow \text{inf. as } x \rightarrow \text{inf.}$

Q: Does anyone know if there is an easy way round this....or, in fact, any way round it at all?

Thanks,

Ben Carter

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