Subject: Re: exp() infinity
Posted by Foldy Lajos on Fri, 08 Aug 2008 15:57:13 GMT
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On Fri, 8 Aug 2008, maffie wrote:

> Hi all,
>
> I have a small question concerning the exponential function exp():
> For values above around 89, IDL returns exp(89) = Infinity.
>
> Is there any way to get the mathematical solution??
> e.g. exp(89) = 4.4896128e38
>
> Thank you!
> Matthias
>

IDL> print, exp(89d)
   4.4896128e+38

double precision raises your limit to 709.

regards,
lajos

Subject: Re: exp() infinity
Posted by Jean H. on Fri, 08 Aug 2008 16:06:10 GMT
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maffie wrote:
> Hi all,
>
> I have a small question concerning the exponential function exp():
> For values above around 89, IDL returns exp(89) = Infinity.
>
> Is there any way to get the mathematical solution??
> e.g. exp(89) = 4.4896128e38
>
> Thank you!
> Matthias

the help file says:
"The expression to be evaluated. If Expression is double-precision floating or complex, the result is of the same type. All other types are converted to single-precision floating-point and yield floating-point results."

so try
IDL> print,exp(89.0D)
   4.4896128e+038

Jean

Subject: Re: exp() infinity
Posted by matthias.demuzere on Fri, 08 Aug 2008 16:07:08 GMT
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Hi,

Thank you!
I the meanwhile I found this link, with the exact same question (and answer):
http://www.dfanning.com/math_tips/underflow.html

Is there also a possibility to add double precision (with this "d") to an array? And it seems that I have many more problems with my calculations, because I get some more messages about underflow and overflow.

Thereby 2 more questions:
- Would there be a solution to solve all these in ones? Like adding a statement somewhere to work in double precision in any of the calculations?
- Is there an easy way to see where exactly (in a sequence of calculations) where it all goes wrong?

Thank you!
Matthias

Subject: Re: exp() infinity
Posted by mankoff on Fri, 08 Aug 2008 16:52:33 GMT
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On Aug 8, 12:07 pm, maffie <matthias.demuz...@geo.kuleuven.be> wrote:
> Hi,
>
> Thank you!
> I the meanwhile I found this link, with the exact same question (and
> answer):http://www.dfanning.com/math_tips/underflow.html
>

> Is there also a possibility to add double precision (with this "d") to
> an array? And it seems that I have many more problems with my
> calculations, because I get some more messages about underflow and
> overflow.
>
> Thereby 2 more questions:
> - Would there be a solution to solve all these in ones? Like adding a
> statement somewhere to work in double precision in any of the
> calculations?
> - Is there an easy way to see where exactly (in a sequence of
> calculations) where it all goes wrong?
>
> Thank you!
> Matthias

To convert an array to double you can do
IDL> dbl = arr*1.0d
or slighly faster
IDL> dbl = DOUBLE(arr)

To find out where the problems are happening, you can use ON_ERROR or !
EXCEPT and CHECK_MATH

-k.
