Subject: Re: Old Question
Posted by Ben Tupper on Tue, 14 Dec 1999 08:00:00 GMT
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Jacques Basson wrote:

> Hi all
>
> Sorry, this has got to be an old question, but I can't seem to locate
> the answer. What is the way around the following problem?
>
> IDL> a = -1
> IDL> print, -1^(1./3)
> -1.00000
> IDL> print, a^(1./3)
> NaN
> % Program caused arithmetic error: Floating illegal operand
>
> Thanks
> Jacques

Hello,

I now know why it happens. In the documentation I see...

Exponentiation

The caret (^) is the exponentiation operator. A^B is equal to A raised to the B power.

ï¿½ If A is a real number and B is of integer type, repeated multiplication is applied.
ï¿½ If A is real and B is real (non-integer), the formula A^B = e^(B ln A) is evaluated.
ï¿½ If A is complex and B is real, the formula A^B = (re^(iq))^B = r^B * (cosBq + isinBq) (where r is the real part of A and iq is the imaginary part) is evaluated.

ï¿½ If B is complex, the formula A^B = e^(B ln A) is evaluated. If A is also complex, the natural logarithm is computed to be ln(A) = ln(re^(iq)) = ln(r) + iq (where r is the real part of A and iq is the imaginary part).
ï¿½ A^0 is defined as 1.

Your example falls into the second type of operation. I don't know how to get around that but would like to know also.

Ben

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