Subject: Re: Math Question
Posted by Foldy Lajos on Sun, 29 Oct 2006 17:59:50 GMT
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On Sun, 29 Oct 2006, David Fanning wrote:

> Folks,
>
> OK, I get the feeling that I am going to be referred to
> my own web page with this question:
>
> http://www.dfanning.com/math_tips/sky_is_falling.html
>
> And it is certainly true that I have been watching WAY
> too much TV lately (World Series, you know), but here is
> my question. How does one explain the following two
> IDL commands?
>
> IDL> Help, (-0.1)^2.0
> <Expression> FLOAT = 0.0100000
> IDL> Help, (-0.1)^2.01
> <Expression> FLOAT = -NaN
>
> In general, raising a negative number to any integer
> power seems to produce a real number, whereas raising
> a negative number to a non-integer power causes a NAN.
>
> I am sure this is explained in one of those textbooks
> covered with dust in my garage, but I thought one of
> you math guys could rescue me from a beautiful day
> spent covered with dust. :-)
>
> Cheers,
>
> David
> --
> David Fanning, Ph.D.
> Fanning Software Consulting, Inc.
> Coyote's Guide to IDL Programming: http://www.dfanning.com/
> Sepore ma de ni thui. ("Perhaps thou speakest truth.")
>

I had the opposite problem with FL: (-0.1)^2.0 was also a NaN. Power is defined for floats as x^y = exp(log(x)*y), and log() is undefined for non-positive numbers. Now FL examines y first, and if its is an integer, then uses multiplications. I think IDL does the same.

regards,

lajos

ps: what will be the result for (-0.1)^2.0000001 ? :-)