Subject: Re: complex math error?
Posted by thompson on Fri, 19 May 1995 07:00:00 GMT
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llobet@elpp1.epfl.ch (Xavier Llobet i Sales EPFL-CRPP 1015 Lausanne CH) writes:

> In article <3pgkmo$b3s@post.gsfc.nasa.gov>, thompson@orpheus.nascom.nasa.gov
> (William Thompson) writes:

> [...]
> =I can't make it fail running IDL 3.6.1c under OSF/1 v2.0 on an AXP 3000/600
> =workstation. I always get the result
> =
> = IDL> print, exp(complex(0,1)*sqrt(2.)*10.)^sqrt(2.)
> = (-1.28269e-10, 1.66070e-10)
> =
> =no matter how many times I try it. (I assume that's the correct value.)

> Nope. Just try

> IDL> print, exp(complex(0,1)*sqrt(2.)*10.)^sqrt(2.D0)
> (-0.611276, 0.791417)

> This gives the right value.

> -xavier

Hmmm, when I tried this with IDL 3.6.1c I get

```
IDL> print, exp( complex(0,1)*sqrt(2.)*10. )^sqrt(2.D0)
(   -0.0477381,  -0.00519184)
```

Which is significantly different from either of the above. However, when I tried this in a beta test version of IDL 4, I get

```
IDL> print, exp( complex(0,1)*sqrt(2.)*10. )^sqrt(2.D0)
(    -0.61127603,      0.79141748)
IDL> print, exp( complex(0,1)*sqrt(2.)*10. )^sqrt(2.)
(    -0.611276,     0.791418)
```

This seems to suggest that there is a bug in IDL v3.6 which is corrected in the upcoming IDL v4. (Versions of IDL previous to 3.6 wouldn't have allowed the above expression.)

Bill Thompson