Hello,
I just found an interesting behaviour of the sine function:
when I ask IDL (4.0.1) to calculate sin(pi) here is what I get:

IDL> print,sin(!Dpi)
   1.2246064e-16   ; This should be 0.0000... (?)

On the other hand, sin(0) works fine:
IDL> print,sin(0D0)
     0.0000000   ; This seams to be a "real" 0
I also tested cos(!Dpi):
IDL> print,cos(!Dpi)
    -1.0000000
and cos(0D0):
IDL> print,cos(0D0)
     1.0000000

Another different behaviour is:
IDL> print,cos(!Dpi/2D0)
   6.1230318e-17

So my question is: why are there two different kind of zeroes ? is it a
bug ? a "feature" ? or maybe simply a format question (the result is
sometimes rounded...)
I know that there can be round-off errors and things like that, so
I am not surprised by the answer itself but rather by the difference
between within what should be the same...

Has anyone a good explanation for that ?

Thanks
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