Subject: Re: double-single precision problem?????
Posted by Peter Mason on Mon, 30 Jun 1997 07:00:00 GMT

On Fri, 27 Jun 1997, Eugenio Sansosti wrote:
> I'm using IDL. Version 4.0.1 (AIX ibmr2).
> Try to type
> print,double(13.1e0)-13.1d0
> you will get
> 3.8146973e-07......
> Is that normal?

Yes, that's par for the course with floating point arithmetic.

There isn't an exact binary floating-point representation for 13.1 - in the same way that there isn't an exact decimal representation for 1/3. Specifying "DOUBLE(13.1e0)" just appends zero digits onto the single-precision value.   This result is different to (less accurate than) what you get if you express 13.1 in double precision from the start (as in "13.1D0"), and so you don't get zero when you subtract the two values.

Peter Mason