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Subject: Re: IDL mathematics

Posted by [velt](#) on Wed, 31 Aug 1994 20:07:10 GMT

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>  
> How come the following expression gives the wrong answer.  
>  
>  $J = 201 + ((1461 * (1994 + 4799)) / 4) - (3 * ((1994 + 4899) / 100) / 4) - 2465022$   
>  
>  $J = -2457713$   
>  
> It should be:  
>  
>  $J = 201 + ((1461. * (1994 + 4799.)) / 4.) - (3. * ((1994 + 4899.) / 100.) / 4.) - 24 65022.$   
>  
>  $J = 16270.5$   
>  
>  
> Kelly Dean

Most of your calculations are done in 2-byte integer, upto the last subtraction. The intermediate results are overflowing, so you get the wrong answer. Throw in a few longs at strategic places:

```
J = 201 + ((1461 * (1994L + 4799)) / 4) - (3 * ((1994L + 4899) / 100) / 4) - 2465022 print, J  
--> 16271
```

Robert Velthuisen,  
Digital Medical Imaging Program of the  
H. Lee Moffitt Cancer Center and Research Institute at the  
University of South Florida.

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Subject: Re: IDL mathematics

Posted by [paul](#) on Wed, 31 Aug 1994 20:20:14 GMT

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In article <342fs2\$8sg@yuma.ACNS.ColoState.EDU>, Kelly Dean writes:

>  
> How come the following expression gives the wrong answer.  
>  
>  $J = 201 + ((1461 * (1994 + 4799)) / 4) - (3 * ((1994 + 4899) / 100) / 4) - 2465022$   
>  
>  $J = -2457713$   
>

The problem is with the large vlaue of  $1461 * (1994 + 4799)$ , which overflows  
one could do

```
IDL> print, 201+((LONG(1461)*(1994+4799))/4-3*((1994+4899)/100)/4)-24650 22
IDL> 16271
```

note that

```
IDL> print, 1461.*(1994+4799)
9.92457e+06
```

is like

```
IDL> print, fix( 9.92457E06)
28634
```

and not like

```
IDL> print, long( 9.92457E06)
9924570
```

Using LONG rather than converting to floating point preserves any integer truncation properties that may (or may not) be desired.

Paul Schopf  
Oceans and Ice Branch  
NASA GSFC

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