
Subject: Re: Absolute value of negative number is negative
Posted by [Dick Jackson](#) on Tue, 09 Feb 2016 21:26:51 GMT
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On Monday, 8 February 2016 11:00:20 UTC-8, wlandsman wrote:

```
> I was surprised to find that taking the absolute value of a 16 bit integer vector was yielding
negative numbers.
> While this is non-intuitive, I think it is unavoidable.  --Wayne
>
>
> IDL> tab= -32768S      ;IDL won't let us define -32768 as a short integer
>
> tab= -32768
>      ^
> % Integer constant must be less than 32768.
>
> IDL> tab = intarr(1)    ;but we can assign a short integer to -32768
> IDL> tab[0] = -32768
> IDL> help,tab          ;Still a short integer
> TAB      INT      = Array[1]
> IDL> print,tab[0]      ;Still a value of -32768
> -32768
> IDL> print,abs(tab[0]) ;Absolute value is negative!
> -32768
```

Good find, Wayne. That's the trouble when there are more available negative values than positive ones.

In case this is helpful, here's an easier way to get that constant:

```
IDL> tab = Fix(-32768)
IDL> help, tab, Abs(tab)
TAB      INT      = -32768
<Expression> INT    = -32768
```

And, to show the problem appears on larger integer types as well:

```
IDL> tab = Fix(2L^15L)
IDL> help, tab, Abs(tab)
TAB      INT      = -32768
<Expression> INT    = -32768
```

```
IDL> tab = 2L^31
IDL> help, tab, Abs(tab)
TAB      LONG     = -2147483648
<Expression> LONG  = -2147483648
```

```
IDL> tab = 2LL^63
```

```
IDL> help, tab, Abs(tab)
TAB      LONG64  = -9223372036854775808
<Expression> LONG64  = -9223372036854775808
```

Cheers,
-Dick

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