Subject: Re: complex arithmetic
Posted by landers on Wed, 06 Apr 1994 13:17:39 GMT
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First, let me agree that there's no reason that this kind of thing should not be supported. But...

Of course, you could do:

```
WAVE> x = complex( 0.,1.)
WAVE> print, exp( 3. * alog( x ) )
(  1.19249e-08,     -1.00000)
```

Just a bit of residual error there in the real part....
This kind of technique will handle complex exponents, too.

It would be pretty easy to write a "pow.pro" around this - test for combo of complex arg / non-int expo, and do the log thing.

(disclaimers - I use PV-WAVE - I tested this only lightly - YMMV - etc.)

```
function pow, arg, expo

on_error,2

if n_params() ne 2 then message, 'Usage: result = POW( argument, exponent )'

; argument sizes...
sa = size(arg)
se = size(expo)

; argument types...
ta = sa(sa(0)+1)
te = se(se(0)+1)

; test for structs/strings
if ta ge 7 or te ge 7 then message, 'Illegal data type.'

; check arg,expo combos - use hard way if complex^(float|double|complex)
; or anything^complex
if ( ta eq 6 and te ge 4) or te eq 6 then begin

   ans = exp( expo * alog( arg ) )

endif else begin

   ans = arg^expo
```

```
endelse

return, ans
end
```