Subject: Better Root Finder
Posted by Max Watson on Sun, 15 Apr 2007 04:55:41 GMT
View Forum Message <> Reply to Message

IDL's fx_root seems very limited; when I want to find the root of say
x^3 - 8 with the initial guess vector [-1,-100,100], IDL returns a
complex number: (-1.00000,   1.73205). Is there a way that
fx_root can be easily modified so that it can find the right answer
with a bad initial guess?

Subject: Re: Better Root Finder
Posted by James Kuyper on Mon, 16 Apr 2007 15:15:24 GMT
View Forum Message <> Reply to Message

Max Watson wrote:
> IDL's fx_root seems very limited; when I want to find the root of say
> x^3 - 8 with the initial guess vector [-1,-100,100], IDL returns a
> complex number: (-1.00000,   1.73205). Is there a way that
> fx_root can be easily modified so that it can find the right answer
> with a bad initial guess?

As has already been pointed out, that is "a" right answer, just not
the one that you wanted. When there are multiple roots, it's logically
impossible for a root finding technique to guarantee that it will give
you the one you want, unless you give it sufficient information to
determine which of those roots IS the one you want . An initial guess
that is sufficiently close to the desired solution is one approach;
methods that are restricted to finding real roots would be another
approach, if the root you want it the only real one.