

Re: infinite vector spaces

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- *From:* José Carlos Santos <jcsantos@xxxxxxxx>
 - *Date:* Mon, 09 Oct 2006 07:46:59 +0100
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drmwecker@xxxxxxxx wrote:

With all due respect, Jose, first, I said "e.g.", which means "for example". I cited it precisely the same reason you did.

Second, I disagree that your mentioning polynomials having finitely many zeroes somehow means "has nothing to do with the Fundamental Theorem of Algebra". It most certainly does!

Please don't top-post. If you want to know what's that and why you shouldn't do it, read

<http://www.caliburn.nl/topposting.html>

or

<http://www.html-faq.com/etiquette/?toppost>

On the other hand, the assertion

"a non-null polynomial has only a finite number of zeros" (*)

is valid for *every* field. Therefore, it has nothing to do with the Fundamental Theorem of Algebra, which is a theorem concerning the field of complex numbers. Yes, you are right, one can use the Fundamental Theorem of Algebra in order to prove that a non-null polynomial with coefficients in a subfield of the complex field has only a finite number of zeros, but don't you think that by doing it you are using an unnecessarily strong theorem in order to prove only a particular case of the assertion (*)? Not to mention that several proofs of the Fundamental Theorem of Algebra actually *assume* that the assertion (*) is true. See, for instance, the proof based upon the Argument Principle which can be found here:

http://en.wikipedia.org/wiki/Fundamental_theorem_of_algebra#Analytical_proofs

Best regards,

Re: infinite vector spaces

Jose Carlos Santos

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