example of an infinite field of finite characteristic

Canonical name	ExampleOfAnInfiniteFieldOfFiniteCharacteristic
Date of creation	2013-03-22 13:11:12
Last modified on	2013-03-22 13:11:12
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Last modified by	vitriol (148)
Numerical id	4
Author	vitriol (148)
Entry type	Example
Classification	msc 12E99

Let K be a field of finite characteristic, such as F_p. Then the ring of polynomials, $K[X]$, is an integral domain. We may therefore construct its quotient field, namely the field of rational polynomials. This is an example of an infinite field with finite characteristic.