1035-11-765

Daniel Goldstein, Robert M. Guralnick, Everett W. Howe* (however@alumni.caltech.edu) and Michael E. Zieve. Nonisomorphic curves that become isomorphic over extensions of coprime degree.

Let p be a prime and let r > 1 and s > 1 be integers that are coprime to one another. We show that there are curves C and D over a finite field K of characteristic p such that C and D become isomorphic to one another over the degree-r extension L of K and over the degree-s extension M of K, but not over any proper subextensions of L/K or M/K.

In particular, in the case where r = 2 and s = 3, we show that there are examples of such curves over every finite field. (Received September 15, 2007)