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Alexander Carl Mueller* (amuell@umich.edu), 111 North Seventh Street, Apartment 2, Ann Arbor, MI 48103. *Counting Rational Points Modulo p On Artin-Schreier Curves.*

For a variety Z defined over a finite field k of characteristic p , it is often much easier to compute $|Z(k)|$ modulo p than otherwise. For example, the Chevalley-Waring theorem states that if F is a polynomial of degree d in n variables and $n > d$, then the number of solutions to the equation $F = 0$ is congruent to 0 modulo p . I will state an arithmetic version of this theorem that applies to any Artin-Schreier curve X (associated with an equation of the form $y^p - y = f(x)$) and use it to demonstrate a congruence

$$|X(\mathbb{F}_{p^n})| \equiv J \text{ modulo } p^v$$

for a certain generalized Jacobi sum J and positive integer v . (Received August 07, 2012)