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A class of algebraic-exponential congruences modulo p . (English) Zbl 1048.11100

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Summary: Let p be a prime number, \mathcal{J} a set of consecutive integers,

\mathbb{F}_p the algebraic closure of $\mathbb{F}_p = \mathbb{Z}/p\mathbb{Z}$ and \mathcal{C} an irreducible curve in an affine space $\mathbb{A}^r(\mathbb{F}_p)$, defined over

\mathbb{F}_p . We prove a lower bound for the number of r -tuples (x, y_1, \dots, y_{r-1}) with $x \in \mathcal{J}$, $y_1, \dots, y_{r-1} \in \{0, 1, \dots, p-1\}$ for which $(x, y_1^x, \dots, y_{r-1}^x) \pmod{p}$ belongs to \mathcal{C}

\mathbb{F}_p .

MSC:

11T99 Finite fields and commutative rings (number-theoretic aspects)

11A07 Congruences; primitive roots; residue systems

Keywords:

congruence; affine space

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