ON CERTAIN PLANE CURVES WITH MANY INTEGRAL POINTS

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ABSTRACT. We define a sequence of polynomials $P_d \in \mathbb{Z}[x, y]$, such that P_d is absolutely irreducible, of degree d, has low height, and has at least $d^2 + 2d + 3$ integral solutions to $P_d(x, y) = 0$. We know of no other nontrivial family of polynomials of increasing degree with as many integral solutions in terms of their degree.