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J Cullinan* (jcullina@colby.edu), Colby College, Department of Mathematics, 5852 Mayflower Hill Drive, Waterville, ME. *Divisibility properties of the torsion subgroup of two-dimensional abelian varieties.*

Let K be a number field, m a positive integer coprime to 6, A/K a two dimensional abelian variety, and $\ell|m$ a rational prime. Under certain restrictions on the mod ℓ representation, we show that if the number of $\mathbf{F}_{\mathfrak{p}}$ -rational points of A mod \mathfrak{p} is divisible by m , for a set of \mathfrak{p} of density 1, then there exists a K -isogenous abelian variety A' such that $\#A'(K)_{tor} \equiv 0(m)$. (Received February 20, 2006)