

TORSION GROUPS OF ELLIPTIC CURVES OVER QUADRATIC FIELDS

Filip Najman
(University of Zagreb, Zagreb)

By Mazur's torsion theorem, all the possible torsion groups of an elliptic curve over the rationals are known. By a result of Kamienny, all the possible torsion groups of an elliptic curve over all quadratic fields are also known. But Kamienny's theorem gives us no information about which torsion groups actually appear for some fixed quadratic field. We examine this problem and, for each torsion group that appears over some quadratic field, find the field with the smallest absolute value of the discriminant such that this group actually appears as torsion of an elliptic curve. We also examine the number of elliptic curves with prescribed torsion over a fixed quadratic field.