

ABSTRACT. We consider the set of triangles in the plane with rational sides and a given area A . We show there are infinitely many such triangles for each possible area A . We also show that infinitely many such triangles may be constructed from a given one, all sharing a side of the original triangle, unless the original is equilateral. There are three families of triangles (including the isosceles ones) for which this theorem holds only in a restricted sense; we investigate these families in detail. Our explicit construction of triangles with a given area may be viewed as a dynamical system in the plane; we consider its features as such. The proofs combine simple calculation with Mazur's characterization of torsion in rational elliptic curves. We discuss the isomorphism classes of the elliptic curves involved.