I.Z. Ruzsa: On the equation $(x^2+1)(y^2+1)=z^2+1$

It is known that all solutions of this equation (and some more general ones) can be obtained from some basic solutions by repeated application of some transformations. However, the following properties were seemingly not observed before. These transformations form

(a) a free semigroup if only positive solutions are considered,

(b) the free product of two-element groups if the sign is not restricted.

We also consider the possibility of finding parametric solutions, and the distribution of solutions.