1106-05-331 **Ben Barber** and **Neil Hindman***, nhindman@aol.com, and **Imre Leader** and **Dona Strauss**.

Distinguishing subgroups of the rationals by their Ramsey properties.

A system of linear equations with integer coefficients is *partition regular* over a subset S of the reals if, whenever $S \setminus \{0\}$ is finitely coloured, there is a solution to the system contained in one colour class. It has been known for some time that there is an infinite system of linear equations that is partition regular over $\mathbb{R}$ but not over $\mathbb{Q}$, and it was recently shown (answering a long-standing open question) that one can also distinguish $\mathbb{Q}$ from $\mathbb{Z}$ in this way. Our aim is to show that the transition from $\mathbb{Z}$ to $\mathbb{Q}$ is not sharp: there is an infinite chain of subgroups of $\mathbb{Q}$, each of which has a system that is partition regular over it but not over its predecessors. We actually prove something stronger: our main result is that if R and S are subrings of $\mathbb{Q}$ with R not contained in S, then there is a system that is partition regular over R but not over S. This implies, for example, that the chain above may be taken to be uncountable. (Received August 22, 2014)