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Why the Recursion Theorists Ought to Thank Me

Foundations of mathematics (f.o.m.) is the study of the most basic concepts and logical structure of mathematics. Gödel, Turing, Post and Kleene pioneered recursion theory (a.k.a. computability theory) in an f.o.m. context. Over a period of forty years, recursion theory lost touch with its f.o.m. roots. More recently, reverse mathematics came to the rescue. Reverse mathematics is an explicitly foundational research program which aims to discover which axioms are necessary and sufficient to prove standard theorems of core mathematics. For recursion theorists, reverse mathematics represents a rich problem area where some (but probably not all) highly developed recursion-theoretic techniques can be applied to draw f.o.m. conclusions which are of general intellectual interest. Confronted with this opportunity, many leading recursion theorists react favorably, while others such as Robert I. Soare exhibit intense hostility. We comment on scientific and sociological aspects of the confrontation.