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Russell G Miller* (russell.miller@qc.cuny.edu), Mathematics Dept., Queens College - CUNY, 65-30 Kissena Blvd., Queens, NY 11367. *Hilbert's Tenth Problem for subrings of the rationals.*

For a ring R , Hilbert's Tenth Problem is the set $HTP(R)$ of polynomials $p \in R[X_1, X_2, \dots]$ for which $p = 0$ has a solution in R . In 1970, Matiyasevich completed work of Davis, Putnam, and Robinson, giving a 1-reduction from the Halting Problem to $HTP(\mathbb{Z})$. We show that this method can succeed only on a measure-0 subclass of the class of all subrings of \mathbb{Q} , because the class of those R_W for which $W' \not\leq_1 HTP(R_W)$ has measure 1. (Here R_W is the subring in which just the primes in W have inverses. The usual measure on Cantor space is transferred to the class of all subrings of \mathbb{Q} using this correspondence.) The proof uses a theorem from the Ph.D. thesis of Stuart Kurtz. (Received August 08, 2015)