We review the model theory of quantifier elimination (QE). In particular I shall prove that, for countable theories, the Strong Shoenfield QE-test is equivalent to the van den Dries QE-test. Using this latter test van den Dries showed that the theory of the reals with a predicate for the powers of two admits quantifier elimination in an expanded language, and is hence decidable. He gave a model-theoretic argument, which provides no apparent bounds on the complexity of a decision procedure. We provide a syntactic argument that yields a procedure that is primitive recursive, although not elementary. In particular, we show that it is possible to eliminate a single block of existential quantifiers in time $2^0_{O(n)}$, where n is the length of the input formula and 2^x_k denotes k-fold iterated exponentiation. Some immediate consequences on decidable recurrent relations will also be discussed, if time permits.