Homework 1

Student Seminar on Hilbert's Tenth Problem
Due October 30
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1. Prove that the class of Diophantine relations is closed under unbounded existential quantification, logical 'and', logical 'or', and bounded existential quantification.

2. Show that a set of natural numbers is Diophantine if and only if it is the set of all natural number values assumed by some polynomial with integer coefficients for natural number values of its variables. In light of this, using Davis's conjecture, what can you say about the set of prime numbers?