1056-11-575 **Benjamin Hutz*** (bhutz@amherst.edu), Department of Mathematics, Amherst College Box 2239, P.O. 5000, Amherst, MA 01002. *On the Number of Rational Pre-Images Under Quadratic Dynamical Systems.*

We study the number of rational pre-images of a rational number a under the quadratic polynomial map $f_c(x) = x^2 + c$. We state the existence of a uniform bound (uniform over the family of maps $f_c(x)$) on the number of rational pre-images and examine effective bounds for various choices of a. We use methods from rational points on curves, Falting's Theorem, height functions, elliptic curves, and elliptic surfaces. This is a combination of completed work, work in progress, and supervised student research. (Received September 13, 2009)