

## Polynomials Modulo $p$

Suppose

$$f(x) = x^n + a_1x^{n-1} + \cdots + a_n$$

is a monic polynomial with integer coefficients; i.e.,  $a_i \in \mathbb{Z}$ . A fixed polynomial  $f(x)$  may or may not split into several factors modulo a prime  $p$ .

Pick a few quadratic polynomials and look at what happens when you vary  $p$ . What is going on in general? What about higher degree polynomials?