

# Irreducible Quadratic Polynomials over $\mathbb{F}_p$ for $p \leq 5$

$p = 2$ : There is a unique monic irreducible quadratic polynomial over  $\mathbb{F}_2$ :

$$x^2 + x + 1$$

$p = 3$ : There are precisely 3 monic irreducible quadratic polynomials over  $\mathbb{F}_3$ :

$$x^2 + 1, \quad x^2 \pm x + 2.$$

$p = 5$ : There are precisely 10 monic irreducible quadratic polynomials over  $\mathbb{F}_5$ :

$$\begin{aligned} &x^2 \pm 2, \\ &x^2 \pm x + 1, \quad x^2 \pm x + 2, \\ &x^2 \pm 2x + 3, \quad x^2 \pm 2x + 4. \end{aligned}$$

**Note:** In general, there are  $\frac{p-1}{2}$  monic irreducible quadratic polynomials over  $\mathbb{F}_p$ .