

$$GF(3): \quad \mathbb{Z}_3 = \{0, 1, 2\}$$

$$p(x) = 2x^2 + x + 1$$

$$\underline{k=2}$$

$$\begin{aligned} k \cdot p(x) &= 2 \cdot p(x) \\ &= 2(2x^2 + x + 1) \pmod{3} \\ &= 4x^2 + 2x + 2 \pmod{3} \\ &= \underline{x^2 + 2x + 1} \end{aligned}$$