NUMBER FIELDS

$K = \mathbb{Q}(\alpha)$ where $f(\alpha) = 0$, $f(x) \in \mathbb{Z}[x]$.

$\mathcal{O}_K$ ring of integers of K
(those $\beta \in K$ roots of monic $g(x) \in \mathbb{Z}[x]$)

VS

ELLIPTIC CURVES

$E: y^2 = x^3 + Ax + B$, $A, B \in \mathbb{Q}$, smooth (projective)

$E(\mathbb{Q}) = \{(x,y) \in E : x, y \in \mathbb{Q}\}$

NUMBER FIELDS VS ELLIPTIC CURVES