

§.2

Defining Number fields

$$\mathbb{R}\langle y \rangle = \mathbb{Q}\mathbb{Q}[]$$

§.1

$$a^2+7$$

$$\mathbb{Q}$$

$$\mathbb{Q}\mathbb{Q}$$

Nf isom

in Pari.

→ Pari
Mod($x^2+7, f(x)$) [x^2+7]

$$\alpha \in K \equiv [x]$$

$$\frac{\mathbb{Q}[x]}{(f(x))}$$

②
S = R. quotient ($x^{100} + x^{17} + 1$)

$$\frac{\mathbb{Q}[x]}{(x)} \times \frac{\mathbb{Q}[x]}{(x^2 \dots)}$$

preparse(“ $\mathbb{R}\langle x \rangle =$ ^① Polynomial Ring ($\mathbb{Q}\mathbb{Q}$)”)

Number Field($(x^{98} \dots, x^{21} \dots)$)

$$x^{100} + x^{17} + 1 = (x^{98} \dots)(x^2 \dots)$$

> x = 5

> R = PolynomialRing(QQ, 'x')

> x = R.gen(0) ; x = R.O

> X

X

show((1 + alpha/5)^10)

preparse('R.O')

latex(anything)

R.gen(0)

> x = 5

> R.<x> = ---

> X

X

NumberField(f(x), 'alpha') # does not work.

K.<alpha> = NumberField(x^2 + 1)

(2^(1/3) + 7), minpoly()

QQ[I]

QQ[sqrt(2)]
sqrt2

QuadraticField(2)
a