$\mathbb{N}$ = natural numbers = $\{0, 1, 2, 3, \ldots\}$

$\mathbb{Z}$ = integers = $\{\ldots, -2, -1, 0, 1, 2, 3, \ldots\}$

$\mathbb{Q}$ = rational numbers

$\mathbb{R}$ = real numbers

$\mathbb{C}$ = complex numbers

$\mathbb{R}^2 = \mathbb{R} \times \mathbb{R}$ Cartesian product

e.g., $(3,5) \in \mathbb{R}^2$ $(3,5) \in \mathbb{R} \times \mathbb{R}$

\mathbb{N} $\rightsquigarrow$ $\mathbb{N}$

$$f: \mathbb{R} \longrightarrow \mathbb{R}$$
$$x \longmapsto x^2$$

ρ

\mapsto

$$y = f(x) = x^2$$