

$$\begin{array}{l} (K, |\cdot|) \\ (V, \cdot) \\ K \\ X \\ f: \\ X \longrightarrow \\ V \\ g: \\ X \longrightarrow_{\geq 0} \\ Y \subseteq \\ X \\ f(x) = \mathcal{O}(g(x)) \end{array}$$

$$\exists C > 0, \forall x \in Y, f(x) \leq C \cdot g(x).$$

$$\begin{array}{l} \mathcal{F} \\ X \\ f(x) = \mathcal{O}(g(x)) \text{ along } \mathcal{F} \end{array}$$

$$\exists C > 0, \exists A \in \mathcal{F}, f(x) \leq C \cdot g(x), \forall x \in A.$$

$$f(x) = o(g(x)) \text{ along } \mathcal{F}$$

$$\exists \varepsilon : X \longrightarrow_{\geq 0}, \exists A \in \mathcal{F}, \lim_{\mathcal{F}} \varepsilon = 0 \text{ and } \forall x \in A, f(x) \leq \varepsilon(x)g(x).$$

$$\begin{array}{l} X \\ \mathcal{F} \\ X \\ f: \\ X \longrightarrow \\ V \\ g: \\ X \longrightarrow_{\geq 0} \\ f(x) = \\ o(g(x)) \\ \mathcal{F} \\ f(x) = \\ \mathcal{O}(g(x)) \end{array}$$

$$\begin{array}{l} f_1: \\ X \longrightarrow \\ V \end{array}$$

$$\begin{array}{l} f_2: \\ X \longrightarrow \\ V \end{array}$$

$$\begin{array}{l} X \longrightarrow_{\geq 0} \\ f_1(x) = \\ \mathcal{O}(g(x)) \\ f_2(x) = \\ \mathcal{O}(g(x)) \end{array}$$

$$\begin{array}{l} \mathcal{F} \\ f_1(x) + \\ f_2(x) = \\ \mathcal{O}(g(x)) \end{array}$$

$$\begin{array}{l} f_1: \\ X \longrightarrow \\ V \end{array}$$

$$\begin{array}{l} f_2: \\ X \longrightarrow \\ V \end{array}$$

$$\begin{array}{l} X \longrightarrow_{\geq 0} \\ f_1(x) = \\ o(g(x)) \\ f_2(x) = \\ o(g(x)) \end{array}$$

$$\begin{array}{l} \mathcal{F} \\ f_1(x) + \\ f_2(x) = \\ o(g(x)) \end{array}$$

$$\begin{array}{l} X \longrightarrow \\ K \end{array}$$

$$\begin{array}{l} f: \\ X \longrightarrow \\ V \end{array}$$

$$\begin{array}{l} X \longrightarrow_{\geq 0} \\ h: \\ X \longrightarrow_{\geq 0} \\ \lambda(x) = \\ \mathcal{O}(g(x)) \end{array}$$

$$\begin{array}{l} \mathcal{F} \\ f(x) = \\ \mathcal{O}(h(x)) \end{array}$$

$$(\lambda f)(x) = \lambda(x)f(x) = \mathcal{O}(g(x)h(x)).$$

$$\lambda(x) =$$