$$\text{fin } \mathbb{H} \lhd \mathfrak{C}(\mathbb{K}) \swarrow_{\Bbbk}$$

$$\Bbbk \sqsubset {}^{\mathbb{H}}\neg\mathbb{K} = \frac{x \in \mathbb{K}}{\bigwedge\limits_{\sigma}^{\mathbb{H}} {}^{\sigma}x = x} \sqsubset \mathbb{K} \text{ fix field}$$

$$\dim_{{}^{\mathbb{H}}\neg\mathbb{K}} {}^{\mathbb{H}}\neg\mathbb{K} = \sharp\mathbb{H} : \mathbb{H}$$

$$\text{fin } \mathbb{H} : \mathbb{H} \leftarrow \mathbb{H} \times \mathbb{H} : \mathbb{H}$$

$$\mathbb{h} \ltimes \underbrace{\mathbb{h}\mathbb{H}}_{} = \underbrace{\mathbb{H}\mathbb{h}}_{} \mathbb{H}$$

$${}^{\mathbb{H}}\gamma \in {}^{\mathbb{H}}\neg\mathbb{K} \overset{\asymp}{\longleftarrow} {}^{\mathbb{H}} : {}^{\mathbb{H}}\mathbb{H} \trianglerighteq \mathbb{K} \ni \gamma$$

$$\Longrightarrow \dim_{{}^{\mathbb{H}}\neg\mathbb{K}} {}^{\mathbb{H}}\neg\mathbb{K} = \dim_{{}^{\mathbb{H}}\neg\mathbb{K}} {}^{\mathbb{H}} : {}^{\mathbb{H}}\mathbb{H} \trianglerighteq \mathbb{K} = \sharp\mathbb{H} : \mathbb{H}$$