

2.  $\mathcal{L}_1$  is a linear space over  $\mathbb{R}$  and  $\mathcal{L}_2$  is a linear space over  $\mathbb{C}$ .  $\mathcal{L}_1$  is a linear space over  $\mathbb{C}$  if and only if  $\mathcal{L}_2 = \{0\}$ .  $\mathcal{L}_2$  is a linear space over  $\mathbb{R}$  if and only if  $\mathcal{L}_1 = \{0\}$ .  $\mathcal{L}_1$  and  $\mathcal{L}_2$  are linear spaces over  $\mathbb{R}$  and  $\mathbb{C}$  if and only if  $\mathcal{L}_1 = \mathcal{L}_2 = \{0\}$ .