10.10 [OZD] Let $1 \leq d \leq n$ be integers. Let $[0, 1]^d$ be a cube of dimension d, we see it as a subset of $\mathbb{R}^n$ by defining

$$K = [0, 1]^d \times \{(0, 0 \dots 0)\}$$

namely

$$K = \{x \in \mathbb{R}^n, 0 \leq x_1 \leq 1, \dots 0 \leq x_d \leq 1, x_{d+1} = \dots = x_n = 0\}$$

Show that the dimension of K is d.

Solution 1. [OZF]