

## Exercises

E11.25 [OZP] Topics: ultrametric. Prerequisites: [OX0].

Fix  $\lambda > 0$ . We define the ultrametric space of sequences as in Sec. [OMR]: let  $I$  be a finite set, of cardinality  $p$ ; let  $X = I^{\mathbb{N}}$  be the space of sequences; define  $c$  as in eqn. [(9.137)]; define  $d(x, y) = \lambda^{-c(x, y)}$ . We know from exercises [OX6] and [OX1] that  $(X, d)$  is compact.

Show that the dimension of  $(X, d)$  is  $\log p / \log \lambda$ .

**Solution 1.** [OZQ]