

## Exercises

E11.0.7 [OYS] Let  $P(\rho)$  be the maximum number of balls, with radius  $\rho$  and centered in  $K$ , that are disjoint. Show that

$$N(2\rho) \leq P(\rho) \leq N(\rho/2).$$

So the dimension can also be calculated as

$$\lim_{\rho \rightarrow 0^+} \frac{\log P(\rho)}{\log(1/\rho)}. \quad (11.0.8)$$

Such a construction is known as *ball packing*.

**Solution 1.** [OYT]