

## Exercises

3.248 [03P] Prerequisites: [036], [03H].

Let  $A_0, A_1, \dots, A_n, \dots$  sets of countable cardinality, for  $n \in \mathbb{N}$ .

Show that  $B = \bigcup_{k=0}^{\infty} A_k$  is countable.

Note that  $B$  is infinite-countable if for example there is at least one  $n$  for which  $A_n$  is infinite-countable.

**Solution 1.** [03Q]