# EXERCISES FROM "SET THEORY" (CHARLES PINTER) BOOK

## EXERCISES 5.2

**Exercise 1** (check [Pin71, ex. 1, page 74])**.** Let $A$ be a set and let $f\colon A \to B$ be a surjective function. Prove that there exists a subset $C \subseteq A$ such that $C$ is one-to-one correspondence with $B$ [*Hint:* Use Theorem 5.4]

*Solution.* By Theorem 5.4, there exists a function $g\colon B \to A$ such that

$$f \circ g = id_B.$$

Then, $g$ is injective. Then $B \approx \operatorname{ran}(g) \subseteq A$. □

## REFERENCES

Pin71. Charles C. Pinter. *Set theory*. Addison-Wesley Publishing Co., Reading, Mass.-London-Don Mills, Ont., 1971.

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