Exercise 1 We throw 3 classic 6-sided die
a) what are the odds of all dice showing the same number?
b) what are the odds of having a number sequence (e.g. either "1,2,3", "2,3,4", "3,4,5" or "4,5,6")?

Exercise 2 For each set of sets, determine if it is:

- closed under finite union (endliche Vereinigungsbildung abgeschlossen)
- closed under countable union (abzählbarer Vereinigungsbildung abgeschlossen)

1. $X = \{A \subseteq \mathbb{N} \mid A \text{ contains only even numbers}\}$
2. $Y = \{A \subseteq \mathbb{N} \mid A \text{ is a finite set}\}$
3. $Z = \{A \subseteq \mathbb{N} \mid |A| \text{ is even } \}$