- *Written solutions have to be prepared until* **Friday 29th of January, 12:00 pm***.*

- *There is a letterbox in front of Room E.01 in the LBH builiding.*

- *You may work in groups of at most two participants.*

Exercise 17:   **Dual sets**   **(4 Points)**

Let $C = \text{conv}(X) \subseteq \mathbb{R}^d$. Please prove the following

$$C^* = \bigcap_{x \in X} D_0(x)^-.$$

(For simplicity, you can assume that C contains the origin 0.)

Exercise 18:   **Duality of Convex Polytope**   **(4 points)**

Prove the following:

- The dual of a d-dimensional simple convex polytope is a d-dimensional simplical convex polytope.

- The dual of a d-dimensional cube is a d-dimensional cross-polytope.