# Notes on Combinatorial Optimization

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# Chapter 1

# Optimization Problems

**Defn 1.1** An *instance* of an *optimization problem* is a pair $(F, c)$, where $F$ is any set, the domain of feasible pointsand $c$ the cost function, a mapping $c : F \to \mathbb{R}$. The problem is to find an $f \in F$ for which $c(f) \leq c(y)$ for all $y \in F$. Such a point $f$ is called a *globally optimal* (or simply *optimal*) solution to the given instance. $\diamond$