**Megiddo, Nimrod**; **Supowit, Kenneth J.**

**On the complexity of some common geometric location problems.** (English) Zbl 0534.68032

SIAM J. Comput. 13, 182-196 (1984).

The p-center problem with respect to a metric $\rho$ (on the plane) consists in producing p points for a given set of n points to minimize the maximal distance (in the metric $\rho$) from the given points to their respective nearest produced points. The similar p-median problem is to minimize the sum of the considered distances. The main result of the paper states that both, p-center and p-median problem, are NP-hard for two metrics $\rho = \ell^2, \ell^1$. It is also proved that the p- center problem is NP-hard even if approximating it within 15 % for $\rho = \ell^2$ and correspondingly within 50 % for $\rho = \ell^1$.

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