

Problem sheet 8

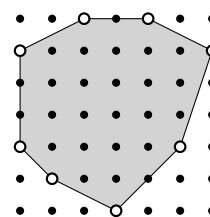
Problems will be discussed at the problem class on **December 21, 2016**.

Problem 16.

Find a set of 8 points in the plane in general position which does not contain any convex pentagon.

Problem 17.

What is the largest k such that there is a convex k -gon among the points of an $n \times n$ square grid?
(It is enough to give the asymptotic growth.)



A convex 8-gon in the 7×7 square grid.

Puzzle 8.

Consider a fixed (closed) unit square S , how many other (closed) unit squares (rotation and translation allowed) can be placed pairwise non-overlapping into the plane so that each overlaps S with non-zero area?