# Water in an infinite desert

There are **n** people who want to settle in the desert. The desert is **infinite**, but contains only **n+1** pools of water. Each pool is a point; the x coordinates of the pools are all different, and so are their y coordinates.

Each person needs a land-plot that touches **2** different pools. Additionally, each land-plot should be **square** with sides parallel to the axes. All squares should be interior-disjoint.
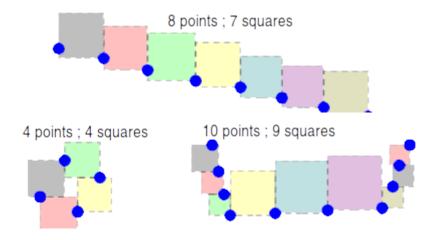
Will the people always succeed in settling the desert?

The solution should be either one of the following:

1. A proof that n squares are possible for every configuration of n+1 pools;

2. A configuration of n+1 pools for which n squares are impossible.

Below are some examples. In all these examples, at least n squares are possible. Is this always so?

Please send solutions to: Erel Segal-Halevi, erelsgl@gmail.com



8 points ; 7 squares



4 points ; 4 squares



10 points ; 9 squares



13 points ; 12 squares