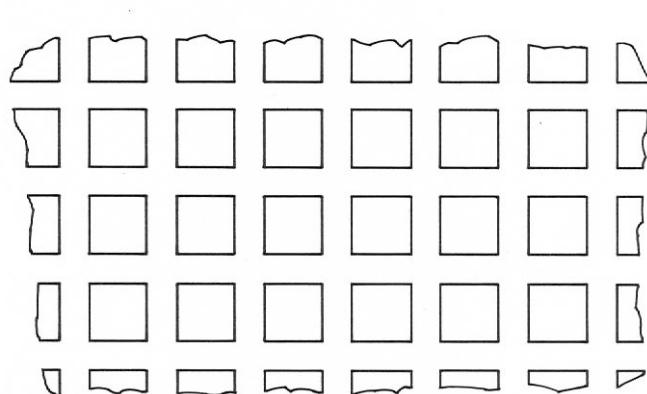




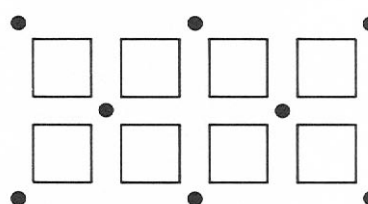
**Firefighters use hydrants to connect their hoses to water mains**

Imagine a city where all the streets are laid out on a rectangular grid and all the blocks are 100m square. The fire department has hoses that are 100m long, so they don't need a hydrant on every street corner.



For a 4x2 grid, the fire department could arrange their hydrants like this, so that every part of the grid could be reached.

This arrangement uses 8 hydrants.



See if you can find an arrangement that uses fewer hydrants. Investigate the minimum number of hydrants required for this and for other grids.