# Exam 1

Combinatorics, Dave Bayer, February 11, 2014

**Name:** ——————————————————————— **Uni:** ————————————————

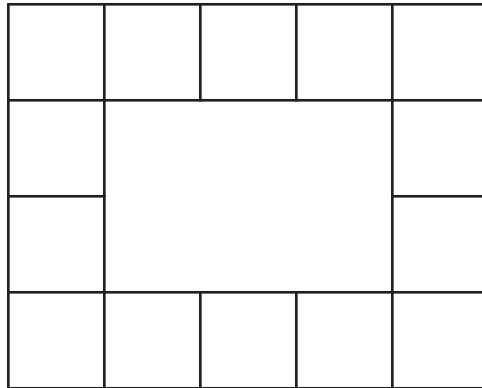| [1] | [2] | [3] | [4] | [5] | **Total** |
|-----|-----|-----|-----|-----|-----------|
|     |     |     |     |     |           |

If you need more that one page for a problem, clearly indicate on each page where to look next for your work.
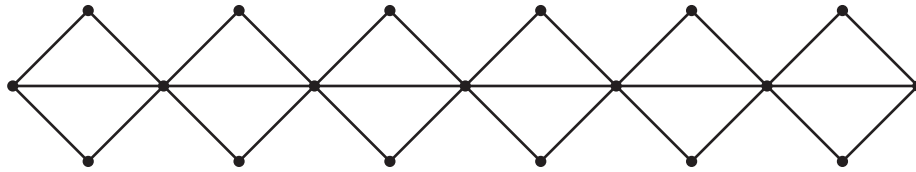
[1] How many dots?
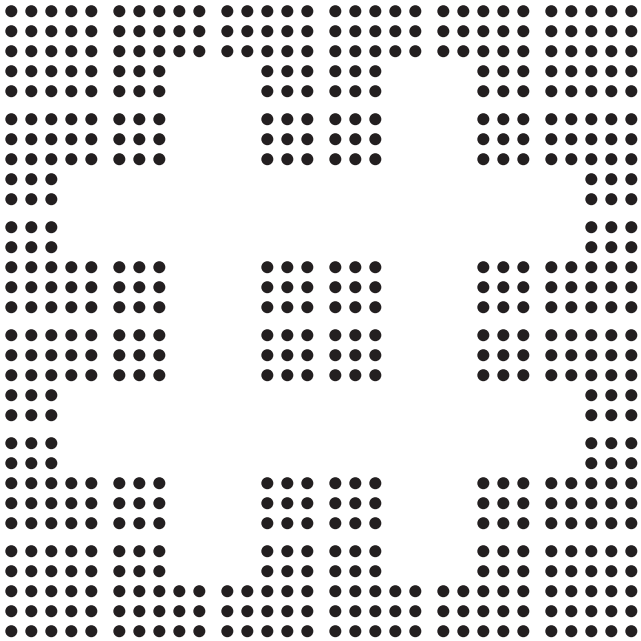
[2] How many paths are there from the lower left corner to the upper right corner of this grid, moving only up or to the right?

[3] How many paths are there of length 8 from the leftmost vertex to the rightmost vertex? Ignore paths that visit a vertex twice.

[4] How many ways can one fill a tube of length 12, using sticks of length 2 and 3? Three of the possibilities are shown below:

[5] There are 21 ways to cut a hexagon into three pieces. How many ways are there to cut an octagon into three pieces?