

# Problem of the Week

09/21/2009 to 10/02/2009

The lattice points of the first quadrant are numbered as shown in the diagram, starting with the first lattice point lying at  $(0,0)$ . For example, the  $9^{\text{th}}$  lattice point is  $(1, 2)$ , while the  $97^{\text{th}}$  lattice point is  $(8, 5)$ .

Determine, with proof, the  $2009^{\text{th}}$  lattice point in this scheme.

36	○	○	○	○	○	○	○
22	35	○	○	○	○	○	○
21	23	34	○	○	○	○	○
11	20	24	33	○	○	○	○
10	12	19	25	32	○	○	○
4	9	13	18	26	31	○	○
3	5	8	14	17	27	30	○
1	2	6	7	15	16	28	29

Solutions for this problem can be submitted to Dr. Brian Miceli at [bmiceli@trinity.edu](mailto:bmiceli@trinity.edu), or you can drop them off at his office, MMS 115F. People with correct solutions will be acknowledged once the solution to this problem has been posted. If you like these problems, you may be interested in the Putnam Exam. More information on the Putnam Exam can also be found at [www.trinity.edu/bmiceli](http://www.trinity.edu/bmiceli).