Pi Mu Epsilon
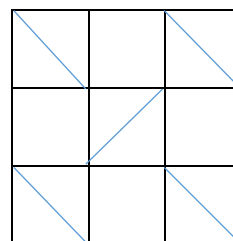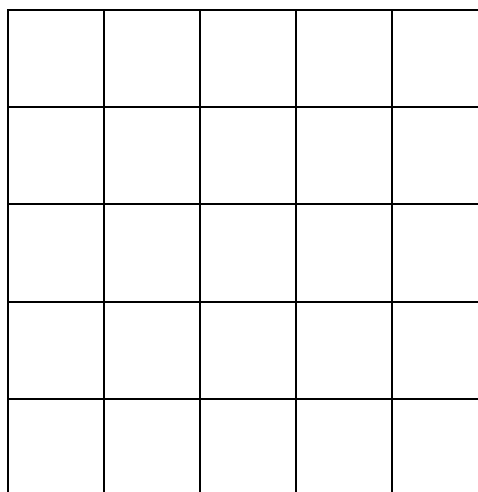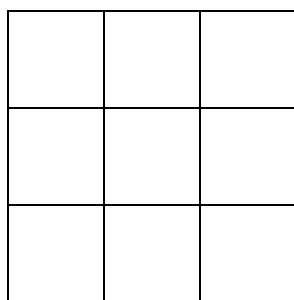# Problem of the Month September 2024

Consider an *n* x *n* grid of squares. The example below shows a 3x3 grid with 5 diagonals. No other diagonals in one of the squares can be added to the grid without either crossing an existing diagonal or touching a diagonal at a corner.

Task: Find the largest number of diagonals that can be drawn in both the 3x3 grid and the 5x5 grids below. Draw the solution in a grid below and list the number of diagonals in each drawing.

Problem of the Month Rules:
- ⌘ Submissions must include a complete mathematical justification along with the answer.
- ⌘ Submissions may only be made by individuals or groups of two, and must be dated.
- ⌘ Due date: September 25, 2024 before 5 p.m. to one of Drs. Poplin, Shoenthal, Ledford, or Hoehner.

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