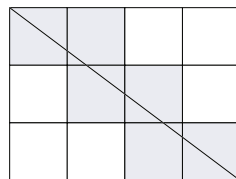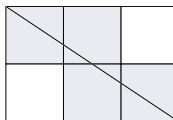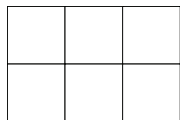# Math 251

YOU MAY USE A CALCULATOR TO COMPUTE SOLUTIONS BUT SHOW YOUR SET-UPS AND REASONING.

Show all relevant work!

Consider the grid of square units within an $m \times n$ rectangle. When a diagonal of the rectangle is drawn, how many of the squares does the diagonal pass through?

Consider:

- Simple examples to start

- A variety of cases (including squares)

- Symmetry

- Lower and upper bounds

- Supporting your generalizations in more than one way