

Investigations on a 5 x 5 Grid

1. How many squares with vertical and horizontal edges are on a 5 x 5 grid? On a 10 x 10 grid? On an $n \times n$ grid?
2. How many different-sized squares are on a 5 x 5 grid? What are the areas and side lengths of the different squares?
3. How many of each different size are there?
4. If three points on a 5 x 5 grid are selected at random, what is the probability that the points will form a triangle? [You may want to investigate this problem using smaller grids, 3 x 3, 4 x 4, first.]

