Problem of the Week

Problem B

Squirrelly Over Nuts

Squiggles the Squirrel loves nuts. He has to be sure that he has enough for the winter, so he decides to hide a bunch around his yard. He buries them in a special way so that he will be able to find them. A portion of his yard is shown as a grid below.

In hiding the nuts, he uses the following plan. Starting at $X$ he buries 2 nuts. He will then repeat the following three steps.

1. He moves 2 m north, 3 m east, and 1 m south, and then buries 3 nuts.
2. He moves 3 m north, 3 m east, and 2 m south, and then buries 5 nuts.
3. He moves 4 m north, 3 m east, and 3 m south, and then buries 8 nuts.

a) On the grid below, mark the positions of Squiggles’ first four hiding spots. Assume each grid line measures 1 m.

b) Suppose that Squiggles then repeats the three steps, starting from where he last buried nuts. Mark these next three hiding spots on your grid.

c) Suppose Squiggles repeats the three steps four more times. Use the pattern in the number of buried nuts to find how many nuts will he have hidden in total.

EXTENSION: Examine the points on your grid from part b). Describe how Squiggles could reach his hiding spots with the least amount of running around.

**Strands**  Geometry and Spatial Sense, Patterning and Algebra