Algebra and Representation HW #9
Patterns and Explicit Formulas

1. **Extreme Paper Folding**
   Given a regular sheet of paper, find out how thick the folded paper would be IF you could fold it 50 times. Also, please describe your answer in terms of a reference (for example, the paper would reach from the floor to the ceiling in our room). Note that 500 sheets of regular thickness paper is about 2″. Complete the table below and explain how you arrive at your answer. Include an **explicit formula** that would compute the number of sheets given *n* folds of the paper.

Number of Folds	0 folds	1 fold	2 folds	3 folds	4 folds	5 folds	6 folds	…
Number of Sheets Thick	1 sheet	2 sheets	4 sheets					…

2. **Tiling a Walkway Around a Pool**
   Given a square pool, we wish to lay one-foot square tiles around the pool to form a walking border. Sketch a picture of this situation if one side of the square is 1' (must be a baby pool). How many tiles are needed? Next sketch a picture of a pool with one side 2'. How many tiles are needed? Continue this pattern until you can describe how to find the number of tiles needed for the border around the pool for any size pool.

Size of Pool	1'	2'	3'	4'	5'	*n*'
Number of Tiles						

   Write both a **recursive** and an **explicit** formula for finding the number of tiles needed for a pool of side size *n* feet.