

Instructions

1. This is an individual assignment. You must do your own work.
2. Show all work. Incomplete solutions will **not** receive full credit

Problem 1 (4 Points)

Show the formula necessary to find the address of a $num_rows \times num_cols$ 2D array at row i and column j . Assume the array starts at $start_addr$ and that this is a row-major 2D array.

Problem 2 (6 points)

Prove or disprove:

$$\sum_{i=1}^n \frac{1}{2^i} = 1 - \frac{1}{2^n}, \forall n \geq 1 \quad (1)$$

Problem 3 (3 points)

List the running time of linked lists in Big-O notation for **search**, **append** and **prepend**. Assume that the linked list does not maintain a “tail” node.