1. (2 Points) Give a recursive definition of a blob.

A recursive definition we use for this method is called nontail recursion since each if statement within markBlob ends with a recursive call with no statement after it. The grid index checks if the bits to its top, bottom, left and right are active (true). If they are, it recurses until there are no blobs to count at the aforementioned indices (it knows this via the visited grid parameter). This in turn adds 1 to the counter (to represent a contiguous blob) and repeats until we have reached the end of the grid.

1. (1 Point) We will use a BitArray variable to represent a grid. Note BitArrays are one dimensional and our grid is two dimensional. What would be the formulas that identify the index of the bit representing the pixel with coordinates (row, col) on the grid?

To get the index of the bit we would use: col + (row \* cols). This will point to the desired value.