1 Something Fishy

Give a tight asymptotic runtime bound for each of the following functions. Assume array is an $M \times N$ matrix ($rows \times cols$).

1.1
```java
public static int redHerring(int[][] array) {
    if (array.length < 1 || array[0].length <= 4) {
        return 0;
    }
    for (int i = 0; i < array.length; i++) {
        for (int j = 0; j < array[i].length; j++) {
            if (j == 4) {
                return -1;
            }
        }
    }
    return 1;
}
```

1.2
```java
public static int crimsonTuna(int[][] array) {
    if (array.length < 4) {
        return 0;
    }
    for (int i = 0; i < array.length; i++) {
        for (int j = 0; j < array[i].length; j++) {
            if (i == 4) {
                return -1;
            }
        }
    }
    return 1;
}
```

1.3
```java
public static int pinkTrout(int a) {
    if (a % 7 == 0) {
        return 1;
    } else {
        return pinkTrout(a - 1) + 1;
    }
}
```

```
1.4   public static boolean scarletKoi(int[] sortedArray, int x) {
          int N = sortedArray.length;
          return scarletKoi(sortedArray, x, 0, N);
      }

      private static boolean scarletKoi(int[] sortedArray, int x, int start, int end) {
          if (start == end || start == end - 1) {
              return sortedArray[start] == x;
          }
          int mid = end + ((start - end) / 2);
          return sortedArray[mid] == x ||
                  scarletKoi(sortedArray, x, start, mid) ||
                  scarletKoi(sortedArray, x, mid, end);
      }
```