Nested Lists Name:_____

1. Consider the following nested list:
   `matrix = [['a','b','c','d'], ['e','f','g','h'], ['i','j','k','l']]`

    a. To make things easier, please rewrite `matrix` with each sub-list on its own line (but leave the brackets!)

    b. What is the value of `matrix[1]`?

    c. What is the value of `matrix[-1]`?

    d. What is the value of `matrix[0][3]`?

    e. What is the value of `matrix[-1][-2]`?

    f. Write a piece of code that will access the letter `'h'`

    g. Write a piece of code to change the `'c'` to an `'x'`

    h. What is the result of `matrix[1:]`?

    i. What is the result of `matrix[0][1:2]`?

    j. What is the value of `len(matrix)`? What is the value of `len(matrix[0])`?

2. Consider the following list of lists:
   `hit_map = [['X','X',' '], ['X'], [' '], [ ], [' ',' ','X']]`

   a. What is the value of `len(hit_map)`?

   b. What is the output of this code snippet?

```
for x in hit_map:
     print(len(x), end = ' ')
print()
```

   c. Write some code to print the number of Xs in each sublist.

   d. Write some code to print the number of Xs in the whole `hit_map`.

   e. Using indexing to list <u>all</u> locations of 'X' in `hit_map`.