Practice with 2d lists

For the examples below, assume you have some 2d lists like this:

```
matrix = [[1, 3, 5], [2, 4, 6], [3, 6, 9]]
matrix2 = [[5, 2, 8, 4], [-9, 0, 4, 1], [5, 6, 4, 8]]
```

1. Write a function to add up and return the sum of all the numbers in a 2d list.

   ```
   def add(grid):
   ```

   Example. add(matrix) returns 39.

2. Write a piece of code that creates a 10 by 10 multiplication table in a grid. Hint: One idea is to start by using the function on the 2d list handout to create a 10 by 10 grid of zeroes, and then use nested for loops to change each element to its proper number.

3. Write a function to add up all the numbers along the upper-left to lower-right diagonal of a matrix. Assume the matrix is square.

   ```
   def add_diagonal(grid):
   ```

   Example. add_diagonal(matrix) returns 14, because 1 + 4 + 9 is 14.

4. Write a function to multiply each odd number in the matrix by 5 (the original matrix should be altered; don't create a new matrix).

   ```
   def mult5(grid):
   ```

5. Write a function to multiply all the numbers in even rows of the grid by 2 (the original matrix should be altered; don't create a new matrix).

   ```
   def mult2even(grid):
   ```

6. Write a function to print the smallest number in each row of a matrix.

   ```
   def print_smallest_in_row(grid):
   ```

   Example: print_smallest_in_row(matrix2) would print 2, -9, 4.

7. Write a function to print the smallest number in each column of a matrix.

   ```
   def print_smallest_in_col(grid):
   ```

   Example: print_smallest_in_col(matrix2) would print -9, 0, 4, 1.

8. Write functions to print the sum of the numbers in each row, and in each column.

9. Challenges: change the print smallest/largest functions to return lists of the smallest/largest items in each row/column, rather than printing them. So problem 5 wouuld return the list [2, -9, 4].