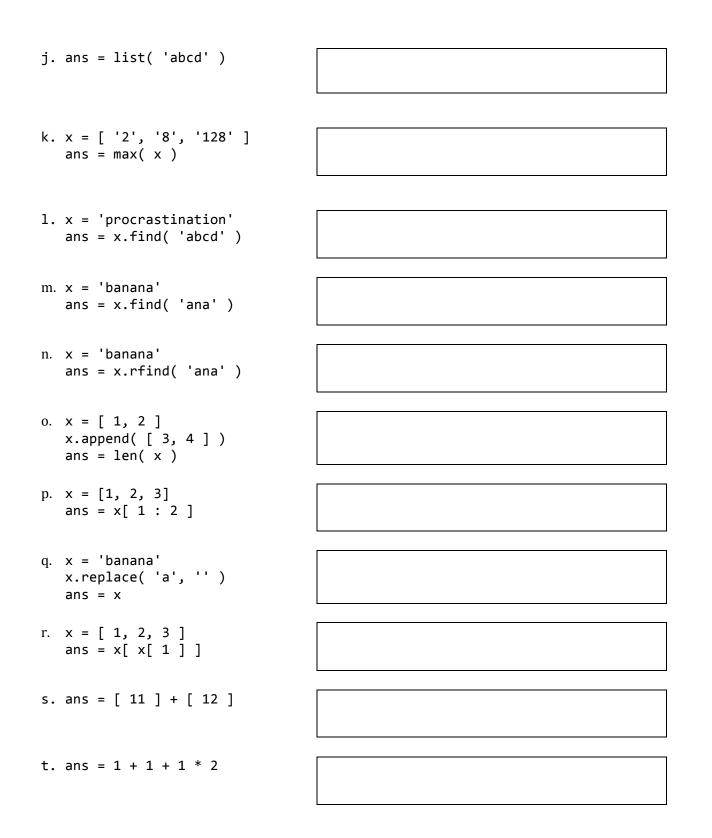**Name:**

**E-mail ID:**

**On my honor, I pledge that I have neither given nor received help on this test.**

**Signature:**

1. (40 points) Each of the following exercises assigns a value to `ans`. Write that value in the provided box. In writing your answers, include quotes on strings, brackets on lists, and a decimal point on floats.

    a. `ans = 3 / 4`

    b. `ans = 3 % 4`

    c. `ans = 3 * 4`

    d. `ans = math.sqrt( 4 )`

    e. `ans = '12' + '3'`

    f. `ans = '12' * 3`

    g. `ans = 3 // 4`

    h. `ans = len( '12' )`

    i. `x = 'a b  cd'`
       `ans = x.split()`

```
j. ans = list( 'abcd' )
```

```
k. x = [ '2', '8', '128' ]
   ans = max( x )
```

```
l. x = 'procrastination'
   ans = x.find( 'abcd' )
```

```
m. x = 'banana'
   ans = x.find( 'ana' )
```

```
n. x = 'banana'
   ans = x.rfind( 'ana' )
```

```
o. x = [ 1, 2 ]
   x.append( [ 3, 4 ] )
   ans = len( x )
```

```
p. x = [1, 2, 3]
   ans = x[ 1 : 2 ]
```

```
q. x = 'banana'
   x.replace( 'a', '' )
   ans = x
```

```
r. x = [ 1, 2, 3 ]
   ans = x[ x[ 1 ] ]
```

```
s. ans = [ 11 ] + [ 12 ]
```

```
t. ans = 1 + 1 + 1 * 2
```

2.  (20 points) Develop program `mm.py`. The program *separately* prompts for two numeric values. The program prints the minimum of the two inputs on one line and the maximum of the two inputs on the next line. There should be no other output. Suggested algorithm:

- Get the two numbers.
- Determine the minimum of the two numbers
- Determine the maximum of the two numbers
- Print the minimum.
- Print the maximum.

Two sample runs

```
Input: 31
Input: 151
35
151
```

```
Input: 59
Input: 53
53
59
```

3. (20 points) Develop program `rv.py`. The program *separately* gets two *integer* input values and prints five random integers. There should be no other output. The first input `s` is used as a seed for random number generation. The second input `b` is used in determining the interval from where the random numbers are to come. The random values are to come from the interval 0 … b. Suggested algorithm:

- Get the seed value.
- Get the upper interval value specifier.
- Set the seed.
- Print five random integers from the requested interval.

Two sample runs

```
Input: 1112
Input: 2
1
0
1
0
1
```

```
Input: 3216
Input: 100
77
81
19
21
89
```

Note: because the seed is specified you should get the above outputs for the given inputs.

4. (20 points) Develop program `co.py`. The program separately gets the name of a CSV data set of *decimal* values and a column number index as input. The data set is stored in web folder:

    `http://www.cs1112.ninja/datasets/csv/`

The program prints the sum of the values for the indicated column number. There should be no other output. As the data is a CSV file, commas separate the data values within a row. The data set will not have a header line. Suggested algorithm:

- Get the name of the data set.
- Get the column number index
- Construct the URL for the data set.
- Use the `tools` module to get the data set contents.
- Strip the data set contents of leading and trailing whitespace.
- Split the data set to get the list of lines making up the data set.
- Do an accumulation that considers each line in turn. When a line is processed, appropriately split it and get the value in the column of interest. Convert the value to a decimal and add the number to the accumulation
- Print the accumulation.

Two sample runs

```
Input: z.csv
Input: 2
1189617.5942019883
```

```
Input: v.csv
Input: 3
16322360.0
```

## Directions

- **Print your name and e-mail ID on Page 1 right now.**

- **Enter your signature for the pledge on Page 1 after completing the test.**

## Test rules

- Print your name, id, and pledge as requested.

- This pledged exam is closed textbook. The only device you may access during the test is your own laptop.

- You are not allowed to access class examples or your own past assignments during the test; i.e., the only Python code you may access or view are ones that you develop for this test.

- The only windows that can be open on your computer are PyCharm and a single browser with tabs only open to the class website.

- PyCharm can be used only for developing the programs to be submitted. It cannot be used for the short answer questions.

- Programs should demonstrate proper programming style; e.g., header comments, whitespace, identifier naming, etc.

- Whether a program compiles is important.