Name:	abc123:

1. (10 Pts) What is the output of the following Python programs? If the execution fails at run-time, write the output up until the failure happens, then write FAIL.

```
PROGRAM A
x = 5
y = x + 3
x = x - 1
z = 10
x = x + z
print('x: {}, y: {}, z: {}'.format(x, y, z))
```

PROGRAM B

```
for z in [2, 4, 7, 9]:
   print(z - 1)
```

PROGRAM C

```
nums = list()
for i in range(4):
   nums.append(2*i)
print(nums)
print(nums[4])
```

PROGRAM D

```
words = ['A', 'short', 'list']
print(len(words))
for s in words:
    print(len(s))
```

PROGRAM E

```
s = 'Y'
while len(s) < 3:
   s = 2*s
    print(s)
```

2. (10 Pts) What is the output of the following Python programs?

```
prob1.txt
Hello
Mom
```

```
program A
fin = open('prob1.txt', 'r')
s = fin.read()
print(s.upper())
```

```
PROGRAM B
def foo(x):
    return x + 3
def bar(a, n):
    print(a*n)

print(foo(7))
bar('x', 4)
bar(foo(2), 6)
```

3. (5 Pts) What will be the contents of the file prob2.txt? Indicate any blanks or newlines clearly.

```
fout = open('prob2.txt', 'w')
words = ['Hello', 'there', 'Mom']
for w in words:
    fout.write(w)
fout.close()
```

4. (5 Pts) What will be printed by the function calls in parts a-d?

```
def comp(x):
    if x < 3:
        print("A")
    elif x > 10:
        print("B")
    else:
        print("C")
```

a. comp(5) **b.** comp(12) **c.** comp(-2) **d.** comp(10)

5.	(10 Pts) Select all the strings that fully match the regular expression: [^dp]an
	☐ Dan ☐ pan ☐ fan ☐ man ☐ None of the above
	Select all the strings that fully match the regular expression: <[a-z]*@[A-Za-z0-9]+.edu>
	<pre><anthony.rios@utsa.edu></anthony.rios@utsa.edu></pre>
	☐ <@utsa\$edu>
	<pre><anthonyrios@utsa#edu></anthonyrios@utsa#edu></pre>
	☐ <anthonyrios@.edu></anthonyrios@.edu>
	\square None of the above strings match
	Select all the strings that fully match the regular expression: ^Go.*
	☐ Way to ^Go!
	☐ Go Bengals!
	☐ go trees?
	\square None of the above strings match
	(5 points): Using the contingency table below, calculate the overserved agreement for Cohen's Kappa (Po is the obability that the two annotators agree) – I will accept fractions. Is the observed agreement a good measure of

4 e annotator quality? Why or why not? Hint: Po = P(Rater 1 = Rater 2)

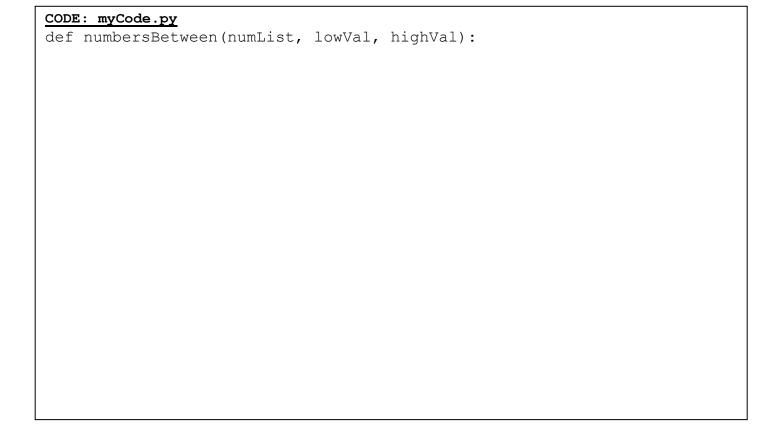
Rater 1

		Υ	N
Rater 2	Υ	2	3
	N	3	22

5. (10 Pts) Complete the function definition.

```
CODE: myCode.py
def numbersBetween(numList, lowVal, highVal):
    '''Print on one line the numbers in numList that lie in the
        interval from lowVal to highVal, allowing lowVal and highVal
    For example,
    numbersBetween([2, 5, 1], 3, 5) prints: 5
    numbersBetween([2, 5, 1, 7, 4], 2, 6) prints: 2 5 4
    '''
```

6. (5 Pts) Modify the previous problem to print nothing, but put the selected numbers in a list, and return the list.



7. (5 Pts) Compute the dot product (i.e., vector vector/inner product) between the following two vectors (show your work):

$$u = \begin{bmatrix} 3 \\ -4 \end{bmatrix} \quad v = \begin{bmatrix} 7 \\ -8 \end{bmatrix}$$

8. (5 Pts) What is the value of AB (i.e., matrix matrix multiplication)? If you show some work, I can give partial credit.

$$A = \begin{bmatrix} 1 & 3 & 2 \\ 1 & -1 & 2 \\ -2 & 0 & 1 \end{bmatrix} \quad B = \begin{bmatrix} 2 & 3 & -2 \\ 1 & -1 & 1 \\ 0 & 2 & 0 \end{bmatrix}$$

EXTRA CREDIT (5 Pts) Complete the code for the following function so it matches its documentation:

FILE: example.py					
def doublesBelow(n, tooBig):					
'''Keep printing and doubling n, as long as the result is					
less than tooBig. For example, doublesBelow(5, 25) would print					
5 10 20 '''					