

Name \_\_\_\_\_

## Python for Math and Stat Fall 2021 Exam 2

For this exam, assume that all necessary packages have been imported.

1. (44 pts) For the following 4 problems, write down what each code block would display if executed in a Jupyter cell.

(a)

```
x = []  
i = 1  
while len(x) < 2:  
    x += [i]  
    i += 5  
x
```

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(b)

```
ssn = '456-12-7890'  
s = ssn.split('-')  
print(f'ssn {s[2]}')
```

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(c)

```
alist = ['alpha', 'beta', 'gamma']  
for elt in alist:  
    if elt[1] in 'alist':  
        print(elt[1])
```

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(d)

```
alist = ['alpha', 'beta', 'gamma']  
[y + str(x) for x, y in enumerate(alist)]
```

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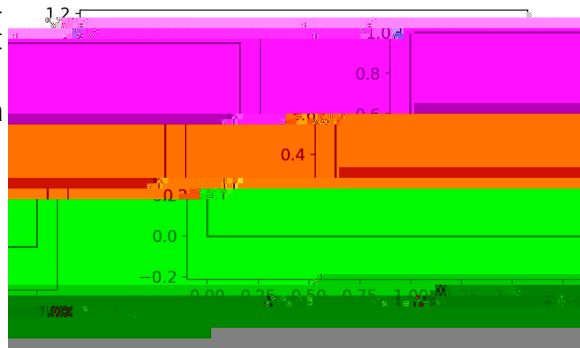
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2. (14 pts) Write a recursive function sum.

4. (14 pts) For this problem, it is not necessary to set the aspect ratio of the plot.

- (a) Write a function `draw_step(x, y)` that displays a rectangle of width 2 and height 1 with the lower left corner located at  $(x, y)$ . The function does not return a value. For example, `draw_step(0, 0)` displays the image shown at right:



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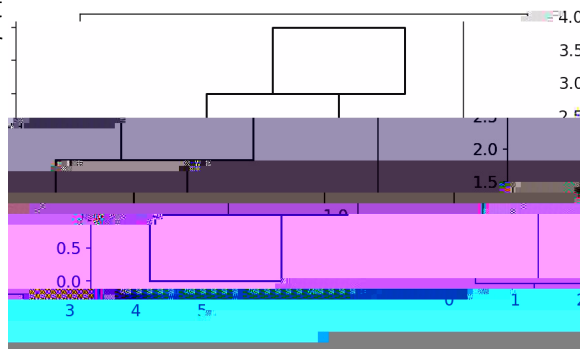
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- (b) Write a function `draw_stairs(n)` that displays a set of  $n$  steps, as shown for  $n=4$ . The function calls `draw_step()` and does not return a value.



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5.