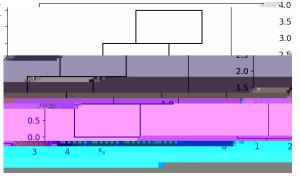Name _____

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

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

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

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

2. (14 pts) Write a <u>recursive function</u> `sum_recips(n)` that returns the sum of the reciprocals of the

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:

(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.

5.