Name: _____ Andrew Id: _____

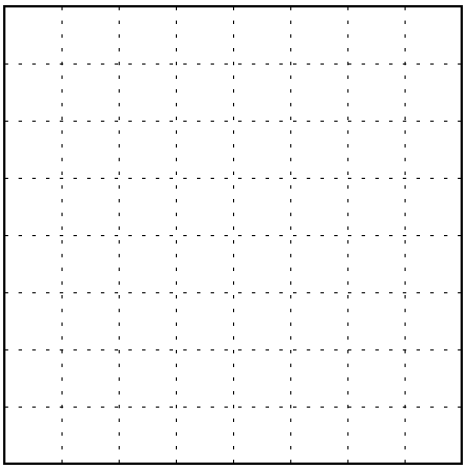
15-112 Spring 2019 Quiz 4

Up to 20 minutes. No calculators, no notes, no books, no computers. Show your work!
Do not use dictionaries, sets, try/except, or recursion on this quiz.

1. (25 points) **Code Tracing**: Given that the box to the right is your canvas, with a width and height of 400 each, draw what the following code would display. You can assume that this is called within the appropriate graphics helper code. **Hint:** Each of the small boxes on the canvas is 50x50 pixels.

```
def drawCT(canvas, width, height):
    A = width//2
    B = height//2
    canvas.create_oval(width-350, height-350,
                       A, B//2, fill="black")
    canvas.create_text(A+A//2, B+B//2,
                       text="112 Rocks", anchor="s")
    points = []
    for i in range(0, 3):
        if i%2==0:
            left=A//2
        else:
            left=A//2+50

        top = B+i*50
        points.append( (left, top) )
    canvas.create_polygon(points, fill="black")
```



2. (25 points) **Code Tracing**: Indicate what the following program prints. Place your answer (and nothing else) in the box next to the code.

```
def ct2(a):
    b = a
    c = copy.copy(a)

    a[0] = 4
    b[0] = 5
    c[0] = 6
    print(a[0], b[0], c[0])

    a = c
    a[1] = 1
    b[1] = 2
    c[1] = 3
    print(a[1], b[1], c[1])

    c = b
    a[2] = 7
    b[2] = 8
    c[2] = 9
    print(a[2], b[2], c[2])

    print(a)
    print(b)
    print(c)

myList = [10,11,12]
ct2(myList)
print(myList)
```

3. (50 points) **Free Response**: Write the function `findNumVowelWords(wordList, word)` which takes two parameters, a list of words and a single word. This function should return a list of all the words from `wordList` that have the same number of vowels as `word`. (Note: The vowels are a,e,i,o,u.)

   For example:

   `findNumVowelWords(["monkey","cat","lion","dinosaur"],"food")` returns `["monkey","lion"]` because "food" has two vowels and so do both "monkey" and "lion".