Exam 2 – Practice Problems for the Paper-and-Pencil portion

1. Consider the code snippet below. It is a contrived example with poor style, but it will run without errors. What does it print when ***main*** runs?

```
def main():
    b = [44]
    a = (50, 30, 60, 77)
    x = 3

    for k in range(len(a)):
        b.append(a[x - k])

    print(a)
    print(b)
```

Write your answer in the box to the right.

Output:

2. Consider the following two candidate function definitions:

```
def foo():
    print('hello')
```

```
def foo(x):
    print(x)
```

   a. Which is "better"? Circle the better function.

   b. Explain why you circled the one you did.

3. Short answer:

   a. What is the difference between a ***class*** and an ***instance of a class*** (in other words, the difference between a ***class*** and an ***object***)?

   b. Write a line or two of code that contains an example of each, clearly identifying the ***class*** and the ***object***.

4. Consider the code in the below. To the right of the box of code, draw the ***box-and-pointer diagram*** for what happens when ***main*** runs. In the space below, show what the code would ***print*** when ***main*** runs.

```
import zellegraphics as zg

def main():
    point1 = zg.Point(8, 10)
    point2 = zg.Point(20, 30)
    x = 405
    y = [7, 4, 13]


    print('Before:',
          point1, point2, x, y)

    z = change(point1, point2, x, y)

    print('After:',
          point1, point2, x, y, z)


def change(point1, point2, x, a):
    point1.x = point2.y
    point2 = zg.Point(5, 6)
    point2.x = point1.y
    x = 99
    a[1] = 888
    print('Within:',
          point1, point2, x, a)

    return a
```

Draw box-and-pointer diagram below here

What prints when *main* runs?

(Assume that *points* get printed as per this example: **`Point(8, 10)`**.)

Before: _____

Within: _____

After: _____