Name:

Please respond to the following questions. *Show your work* if applicable, and be as *explicit* as possible in your answers.

1. In the following snippet of code, label the name of the variable and the name of the class. Use this example to explain what an object is in the context of memory.

```
p1 = Point(2,3)
```

2. A researcher is conducting a survey on favorite sports and encodes each sport with a number. For example, 1=Archery, 2=Boxing, 3=Curling, and so on. They average these numbers to get 2.3 and conclude that on average, people's favorite sport is boxing on ice. Why is this incorrect?

3. A researcher is conducting a study on vegetarian diets. They stand in front of a build-your-own-salad restaurant and survey people who enter. Identify the population, and explain why this is not a great sample.

4. A researcher wants to study the population of all New York City residents. What is a feasible sample frame, and what biases might this sample frame be prone to?

5. A scientist conducted an observational study on mental health and calculated that the correlation between recreational drug use and depression is 0.83. Why can't they conclude that recreational drug use causes depression?