1. (2 pts) What is printed by the following code?

```java
public class Question1 {
    public static void initialize(int num) {
        num = 7;
    }
    public static void main(String[] args) {
        int number = 1;
        initialize(number);
        System.out.println(number);
    }
}
```

Since all parameter passing in Java is by value, changing the value of the formal parameter has no effect on the value of the actual parameter. So 1 is printed.

2. (2 pts) The signature of a method in Java is a combination of its name and parameter list, and method overloading involves two or more methods in the same program with the same name but different parameter lists.

3. (2 pts) Suppose you are trying to convert the decimal number 57 to binary. How would you use a method in the Math class to find the largest power of 2 less than or equal to 57?

We would use the Math.log method. We want to know what x is such that \(2^x \leq 57\). Taking the log of both sides we get \(x \cdot \log(2) = \log(57)\). So x is the integer part of \(\frac{\log(57)}{\log(2)}\).

4. (2 pts) What does it mean for an object to become garbage? How can a programmer force garbage collection to take place?

An object becomes garbage when there are no valid references to it. A programmer can’t force garbage collection to happen.

5. (2 pts) Suppose we want to sort an array of ints using the Selection Sort. Fill in the missing code.

```java
public class Question5 {
    public static void swap(int[] array, int firstIndex, int secondIndex) {
        int temp = array[firstIndex];
        array[firstIndex] = array[secondIndex];
        array[secondIndex] = temp;
    }
    public static void sort(int[] array) {
        for (int counter=0; counter < array.length; counter++)
            for (int counter1 = counter+1; counter1 < array.length; counter1++)
                if (array[counter1] < array[counter])
                    swap(array, counter, counter1);
    }
}
```
```java
public static void main(String[] args) {
    int[] numbers = {22, 14, 18, 5, 6, 12, 10};
    sort(numbers);
}
```