Name: **Answer Key**

This is a closed note, closed book exam. There are 7 questions (some are on the back).

1. What is printed by the following program fragment given an input of 21?

```java
int x = Console.in.readInt();
if(x >= 21)
    System.out.println("foo");
else
    System.out.println("bar");
```

2. What is printed by the following program fragment given an input of 9?

```java
int x = Console.in.readInt();
while(x > 0) {
    System.out.print(x + " ");
    x = x / 2;
}
System.out.println();
```

3. What is printed by the following program fragment for an input of 3?

```java
int x = Console.in.readInt();
if (x <= 5)
    System.out.println("one");
else if (x <= 3)
    System.out.println("two");
else
    System.out.println("three");
```

4. What is printed by the following program fragment? Warning: this one is tricky.

```java
int x = 1, y = 2, z = 3;
if(x == y)
    System.out.println("one");
if(z > y)
    System.out.println("one");
else
    System.out.println("two");
```

foo

9 4 2 1 (and a newline)

one

nothing is printed out
5. Write a while loop to repeatedly ask the user for numbers and add them until the user types a zero, then print out the sum.

```java
int n = 1, sum;
while(n != 0) {
    n = Console.in.readInt();
    sum += n;
}
System.out.println(sum);
```

6. Write a for loop that prints out the numbers 1 through 10 backwards, each on a different line.

```java
for(int i = 10; i >= 1; i--) {
    System.out.println(i);
}
```

7. What does this code fragment do? Be specific.

```java
for(i = 1; i < 10; i++) {
    for(j = 1; j < 10; j++)
        System.out.print(" "+ i * j);
    System.out.println();
}
```

It prints out the multiplication table for the numbers 1 through 9.