CSE 142 Sample Midterm Exam #2 Key

1. Expressions

Expression	Value
8 + 5 * 3 / 2	15
1.5 * 4 * 7 / 8 + 3.4	8.65
73 % 10 - 6 % 10 + 28 % 3	-2
4 + 1 + 9 + "." + (-3 + 10) + 11 / 3	"14.73"
3 / 14 / 7 / (1.0 * 2) + 10 / 6	1.0
10 > 11 == 4 / 3 > 1	true

2. Parameter Mystery

```
happy and pumpkin were orange!
orange and happy were pumpkin!
orange and sleepy were y!
pumpkin and x were green!
green and pumpkin were vampire!
```

3. While Loop Simulation

Method Call	Value Returned
mystery(2, 9)	0
mystery(5, 1)	6
mystery(38, 5)	119
mystery(5, 5)	0
mystery(40, 10)	57

4. Assertions

	next < 0	y > z	y == 0
Point A	SOMETIMES	NEVER	ALWAYS
Point B	NEVER	SOMETIMES	SOMETIMES
Point C	NEVER	ALWAYS	NEVER
Point D	SOMETIMES	SOMETIMES	NEVER
Point E	ALWAYS	SOMETIMES	SOMETIMES

5. Programming (one solution shown)

```java
public static double computeGrade(int percentage) {
    if (percentage <= 59) {
        return 0.0;
    } else if (percentage <= 62) {
        return 0.7;
    } else if (percentage <= 94) {
        return 0.8 + 0.1 * (percentage - 63);
    } else {
        return 4.0;
    }
}
```

6. Programming (one solution shown)

```java
public static void threeHeads() {
    Random r = new Random();
    int numHeads = 0;

    while (numHeads < 3) {
        int flip = r.nextInt(2); // flip coin
        if (flip == 0) { // heads
            numHeads++;
            System.out.print("H ");
        } else {
            numHeads = 0;
            System.out.print("T ");
        }
    }
    System.out.println();
    System.out.println("Three heads in a row!");
}
```