1. Expression | Value
-----------------------------
3 * 4 + 5 * 6 | 42
23 % 5 - 17 % (16 % 10) | -2
"1" + 2 + 3 * 4 + (5 + 6) | "121211"
1.5 * 2 + 20 / 3 / 4.0 + 6 / 4 | 5.5
345 / 10 / 3 + 10 / (5 / 2.0) | 15.0

2. The program produces the following output:

   semi missing a brace and a 42
   semi missing a 42 and a 8
   brace missing a literal and a semi
   84 missing a 1 and a cse

3. Method Call | Output Produced
-------------------------------
ifElseMystery(2, 7); | 11 7
ifElseMystery(6, 6); | 6 16
ifElseMystery(4, -1); | 3 0
ifElseMystery(11, 10); | 11 21
ifElseMystery(-10, 7); | 0 17
ifElseMystery(100, 5); | 99 6

4. Method Call | Output Produced
-------------------------------
mystery(0); | 1 1
mystery(7); | 2 12
mystery(32); | 3 123
mystery(256); | 4 1234

5. | num < 0 | first < second | num >= second
---|---|---|---
Point A | sometimes | never | always
Point B | never | sometimes | sometimes
Point C | never | always | never
Point D | never | sometimes | sometimes
Point E | always | sometimes | sometimes

CSE142 Midterm Key
Summer 2019
6. One possible solution appears below.

```java
public static void spinWheel(Random r, int n) {
    int spin = r.nextInt(5) * 10 + 20;
    System.out.print("spins: " + spin);
    int count = 0;
    if (spin == 20) {
        count++;
    }
    int totalSpins = 1;
    while (count < n) {
        spin = r.nextInt(5) * 10 + 20;
        totalSpins++;
        System.out.print(" , " + spin);
        if (spin == 20) {
            count++;
        } else {
            count = 0;
        }
    }
    System.out.println();
    System.out.println(n + " in a row after " +
            totalSpins + " spins");
}
```

7. One possible solution appears below.

```java
public static boolean balanceCheckbook(Scanner console) {
    System.out.print("initial balance? ");
    double balance = console.nextDouble();
    System.out.print("how many transactions? ");
    int count = console.nextInt();
    double min = balance;
    for (int i = 1; i <= count; i++) {
        System.out.print(i + "/" + count + " amount? ");
        double amount = console.nextDouble();
        balance = balance + amount;
        System.out.println("new balance = "+ balance);
        if (balance < min) {
            min = balance;
        }
    }
    System.out.println("minimum balance = "+ min);
    return (min < 0);
}
```
One possible solution appears below.

```java
// Use a boolean flag to keep track of beginning of words
public static String hashTag(String s) {
    String result = "";
    boolean firstLetter = true;
    for (int i = 0; i < s.length(); i++) {
        if (s.charAt(i) == ' ') {
            firstLetter = true;
        } else {
            if (firstLetter) {
                result += Character.toUpperCase(s.charAt(i));
                firstLetter = false;
            } else {
                result += Character.toLowerCase(s.charAt(i));
            }
        }
    }
    return "#" + result;
}
```