PS 1: Part I

Problem 1: Learning to read Java Code

1-1)

a) a == b
b) a < b
c) a > b
d) a <= b
e) a > b

1-2)

a) No Error
b) Error
c) No Error

1-3)

a) “2bc”
b) “5bc”
c) “5bc”
d) “bc5”
e) “bc23”

Problem 2: Java programming basics

2-1)

```java
import java.util.*;

public class Problem2 {
    /*
     * This static method should take an integer x and return:
     *    - the opposite of x when x is negative
     *    - 10 more than x when x is non-negative and even
     *    - the unchanged value of x when x is non-negative and odd
     */
    public static int adjust(int x) {
        if (x < 0) {
            x *= -1;
        }else if (x % 2 == 0) {
            x += 10;
        }
        return x;
    }

    public static void main(String[] args) {
        Scanner console = new Scanner(System.in);
        System.out.print("Enter an integer x: ");
        int x = console.nextInt();

        System.out.println("adjust(x) = " + adjust(x));
        console.close();
    }
}
```

2-2)

a) 5.75
b) 5
c) 27.0
d) “xy”
e) 5
f) true

g) 14
h) 12
i) “13CS”
j) “CS112”

2-3)

a) “15g”
b) 7
c) 7.5
d) 7.5
e) 0
f) 0
g) “112”
h) “22”

Problem 3: Conditional execution

3-1)

a) “Terriers”
“Crimson”
“Let’s go!”

b) “Terriers”
“Crimson”
“Let’s go!”

c) “Bears”
“Let’s go!”

d) “Big Green”
“Big Red”
“Bulldogs”
“Let’s go!”

e) “Huskies”
“Let’s go!”

f) “Big Green”
“Bulldogs”
“Let’s go!”

3-2) The line “Quakers” will never be printed because suppose the first two conditions are false, the inequality statement for a, b, c is b >= a > c. Therefore the condition !(b > c) will always be evaluated to be false and thus, “Quakers” will never be printed for any set of inputs.

Problem 4: Static methods

4-1

variables that belong to main()

x	y
1	3
4	3
4	27

variables that belong to compute()

x	y
1	3
4	3
4	2
3	3
6	3
6	0
3	4
6	4
6	2

output (the lines printed by the program)

```
1 3
4 2
4 3
6 0
4 3
6 2
4 27
```

4-2)

```
public static double bmi(int w, int h) {
    double result = (720.0 * w) / (h * h);
    return result;
}
```

Problem 5: Loops

5-1)

```
for (int i = 0; i < 2022; i++) {
    System.out.println("Twenty two!");
}
```

5-2)

```
public static void countDown(int n) {
    while (n > 0) {
        System.out.println(n);
        n--;
    }
}
```

5-3)

```
for (int i = 1; i < 4; i++) {
    System.out.println("** " + i + " **");
    for (int j = 3; j > 0; j--) {
        System.out.println(i + " " + j);
    }
}
```