PS 1: Part I

Problem 1: Java programming basics
1-1)
```java
import java.util.*;

public class Problem1 {
    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("Enter an integer x: ");
        int x = console.nextInt();

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

1-2)
a) 5.75
b) 5
c) 27.0
d) "xy"
e) 5
f) true
g) 14
h) 12
i) 13CS
j) CS112

Problem 2: Conditional execution
2-1)

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!

2-2)
"Lions" will never be printed because if the statement if(a<=c) did not pass then if(a<c) in the else if statement will also never pass, hence the line that prints "Lions" will never be reached or executed.

"Quakers" will never be printed because if the statements if(a<=c) and else if(b<a) does not pass then it must be true that a>c and a<=b or c<a<=b. Then, by transitivity it must be true that c<b. Hence, the statement if(!(b > c) will never pass. Therefore, the println("Quakers") will never be reached or executed.

Problem 3: Static methods

3-1

variables that belong to main()

x	y
1	3
4	3
6	3
6	27

variables that belong to compute()

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

output (the lines printed by the program)

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

3-2)
```
public static void bmi(int w, int h) {
      double result = (720 * w) / (h*h);
      return result;
}
```


Problem 4: Loops
4-1)
```
for (int i = 0; i <= 2022 ; i++ ) {
    System.out.println("Twenty two!");
}
```


4-2)
```
public static void countDown(int n) {
      int i = n
      while (i > 0) {
            System.out.println(n)
            i = i - 1
      }
}
```


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