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Homework 5

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```
private static int getPositiveInteger(SimpleReader in, SimpleWriter out) {  
    out.print("Input beginning number: ");  
    String userInput = in.nextLine();  
  
    while(!FormatChecker.canParseInt(userInput)) {  
        out.println("Input positive Integer: ");  
        userInput = in.nextLine();  
    }  
  
    int converted = Integer.parseInt(userInput);  
    return converted;  
1) }
```

a)	Statements	Variables
		int n=1 int i=2
	while(i<5){	n=1 i=2
	n=n+i	n=3 5 8 i=3 4
	i=i+1	n=3 5 8 i=3 4 5
	}	n=8 i=5
	3	

  

b)		int i=2 double n=1.0/2.0
	while(i<5){	i=2 3 4 n=0.5 0.3333
	n=n+1.0/i	i=2 3 4 n=.75 .5833 .39583
	i=i+1	i=3 4 5 n=.75 .8333 .95833
	}	n=.39583 i=5

2)

c)		double x = 1.0; double y = 1.0;
	while (x < 1.0) {	x = 1.0 1.5 1.75 y = 1.0 0.25 .25
	y = y / 2.0	
		x = 1.0 1.5 1.75 y = 0.5 .25 .125
	x = x * y	
		x = 1.5 1.75 1.875 y = 0.5 .25 .125
	}	x = 1.875 y = .125

d)		int x = 3 int y = 4
	while (y > 0) {	x = 3 4 5 6 y = 4 3 2 1
	x = x + 1	
		x = 4 5 6 7 y = 4 3 2 1
	y = y - 1	
		x = 4 5 6 7 y = 3 2 1 0
	}	x = 7 y = 0

```

//a
int sum = 0;
for (int i = 2; i<101; i+=2){
    sum += i;
}

//b
int sum1 = 0;
for (int i = 1; i*i<101; i++){
    sum1 += i*i;
}

//c
for (int i = 0; i<21; i++){
    double computed = Math.pow(2, i);
}

//d
if (a%2==0) {
    a++;
}
int sum2 = 0;
for(int i=a;i<=b;a+=2) {
    sum2+=a;
}

//e
String input1 = Integer.toString(userInput);
int sum3 = 0;
for(int i=0;i<input1.length();i+=2) {
    sum3+=Character.getNumericValue(input1.charAt(i));
}

//f
String input2 = Integer.toString(userInput);
int sum4 = 0;
for(int i=input2.length()-1;i>=0;i-=2) {
    sum4+=Character.getNumericValue(input1.charAt(i));
}

```

3)

```

//a
public static int larger(int x,int y) {}

//b
public static double smallest(double x, double y, double z) {}

//c
public static boolean prime(int x) {}

//d
public static boolean included(String small, String big) {}

//e
public static double balance(double initial, double interest, int years) {}

//f
public static void balance(double balance, double interest, int years) {}

//g
public static void calendar(int month, int year) {}

//h
public static String weekday(String day, int month, int year) {}

//i
public static int random(int n) {}

```

4)

- 5) Since Java is pass-by-value, the values within the swap method copy the values from the argument and those values get swapped, but not the actual arguments.

```

//a
public static boolean allTheSame(int x, int y, int z) {
    if (x==y && y==z) {
        return true;
    }
    return false;
}

//b
public static boolean allDifferent (int x, int y, int z) {
    int count = 0;
    if (x!=y) {
        count++;
    }
    if (x!=z) {
        count++;
    }
    if (y!=z) {
        count++;
    }

    if(count ==3) {
        return true;
    }
    return false;
}

//c
public static boolean sorted(int x, int y, int z) {
    if (x<y && y<z) {
        return true;
    }
    return false;
}

```

6)