Class Recursor

```
import java.util.Scanner;
public class recursor {

	//from last tutorial
	public static double power(int x, int y){
		if(y == 0) return 1;
		else if(y < 0)
			return 1.0/x * power(x, y+1);
		else
			return x * power(x, y-1);
	}

	public static int digitCount(int x){
		if(x == 0)
			return 0;
		else
			return 1 + digitCount(x/10);
	}
	public static int digitSum(int x){
		if(x == 0)
			return 0;
		else
			return x%10 + digitSum(x/10);
	}

	public static int reverseDigits(int x){
		if(x == 0)
			return 0;
		else{
			int digit = x%10;
			return digit * ((int) power(10, digitCount(x/10)))
				+ reverseDigits(x/10);
		}
	}

	public static int reverseDigits2(int x){
		return reverseDigits2(x, digitCount(x));
	}
	private static int reverseDigits2(int x, int nbDigits){
		if(x == 0)
			return 0;
		else{
			int digit = x%10;
		return digit * ((int) power(10,nbDigits-1))
			+ reverseDigits2(x/10, nbDigits-1);
		}
	}
```

```
	public static int reverseDigits3(int x){
		return reverseDigits3(x, 0);
	}
	private static int reverseDigits3(int x, int temp){
		if(x == 0)
			return temp;
		temp = temp * 10 + x%10;
		return reverseDigits3(x/10, temp);
	}

	public static boolean isPalindrome(int x){
		int digits = digitCount(x);
		return isPalindrome(x, x, digits);
	}
	private static boolean isPalindrome(int x, int remain, int digits){
		if(remain < 10) return x%10 == remain;
		int a = remain%10;
		int b = (int)(x/power(10,digits-1))%10;
		if(a == b)
				return isPalindrome(x, remain/10, digits-1);
		else
			return false;
	}

	public static int toBinary(int x){
		if(x == 0)
			return 0;
		if(x%2 == 1)
			return 1 + toBinary(x/2) * 10;
		else
			return 0 + toBinary(x/2) * 10;
	}

	public static void main(String[] args) {
		System.out.println("The number 871623 has "
				+ digitCount(871623) + " digits");
		System.out.println("The sum of the digits of 1234 is: "
				+ digitSum(1234));
		System.out.println("The reverse digits of 12345 is: "
				+ reverseDigits(12345));
		System.out.println("The reverse digits of 12345 is: "
				+ reverseDigits3(12345));
		System.out.println("Is 8769678 palindrome? "
				+ isPalindrome(8769678));
		System.out.println("Is 87691 palindrome? "
				+ isPalindrome(87691));
		System.out.println("The number 43 in binary = "
				+ toBinary(43));
	}
}
```

Sample Run

```
The number 871623 has 6 digits
The sum of the digits of 1234 is: 10
The reverse digits of 12345 is: 54321
The reverse digits of 12345 is: 54321
Is 8769678 palindrome? true
Is 87691 palindrome? false
The number 43 in binary = 101011
```