```
public int gcd(int x, int y) {
		while (y!=0) {
			if (x>=y && x!=0) {
				int temp = x;
				x=y;
				y = temp % x;
			}
		}
		return x;
	}
```

Big O

(gcd)= log n(2+1+1+1)+1

= log n (5)+1

= 5 log n + 1

Change all constants be zero = 5 log n + 0

Change all coefficients be 1 = 1 log n + 0

Choose the term with the largest exponent = log n

Express the function in terms of Big O = O(gcd) = O(log n)

=Logarithmic

```
public int hanoi(int n) {
                while(n!=1) {
                        if(n>1) {
                                return 2 * hanoi(n-1)+1;
                        }
                }
                return 1;
        }
}
```

Big O

(hanoi)= log n(1+1)+1

= log n (2)+1

= 2 log n + 1

Change all constants be zero = 2 log n + 0

Change all coefficients be 1 = 1 log n + 0

Choose the term with the largest exponent = log n

Express the function in terms of Big O = O(hanoi) = O(log n)

=Logarithmic