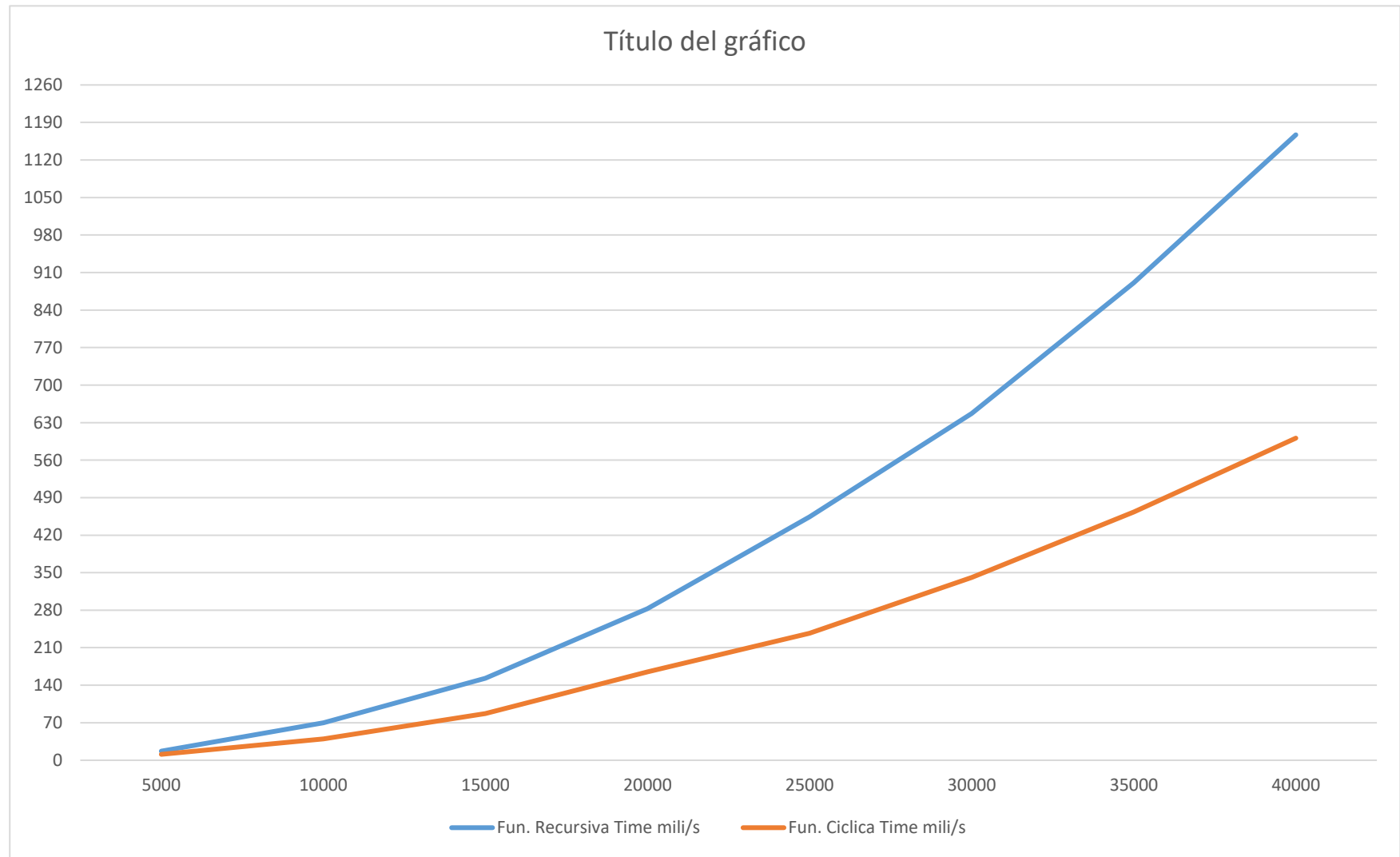


Grafica de tiempos de ejecucion

Tope	5000	10000	15000	20000	25000	30000	35000	40000
Fun. Recursiva Time mili/s	17	70	153	283	454	647	891	1167
Fun. Ciclica Time mili/s	11	40	87	165	237	341	463	601



```

public class Principal {
    // final static int TOPE=1234000000;
    final static long TOPE=40000;
    public static void main(String[] args) {

        //4.- INVOCANDO A FUNCION POTENCIA RECURSIVA
        Instant start4 = Instant.now();
        double sum4=0;
        for(int i=0; i<=TOPE;i++) {
            double pot4 = potenciaRecursiva( ((double)i), i);
            sum4+=pot4;
        }
        Instant end4 = Instant.now();
        Duration timeElapsed4 = Duration.between(start4, end4);
        System.out.println("Tiempo 4 funcion recursiva: "+
            timeElapsed4.toMillis()+ " milisegundos" + " res:"+sum4);

        //5.- INVOCANDO A FUNCION POTENCIA CICLO
        Instant start5 = Instant.now();
        double sum5=0;
        for(int i=0; i<=TOPE;i++) {
            double pot5 = potenciaCiclo( ((double)i), i);
            sum5+=pot5;
        }
        Instant end5 = Instant.now();
        Duration timeElapsed5 = Duration.between(start5, end5);
        System.out.println("Tiempo 5 funcion ciclica: "+
            timeElapsed5.toMillis()+ " milisegundos"+ " res:"+sum5);
    } // del main

    static double potenciaRecursiva(double base, long exp){
        if (exp==0) return 1.0;
        else return base * potenciaRecursiva(base, (exp-1) );
    }

    static double potenciaCiclo(double base, long exp){
        double pot=1;
        for (long i=exp; i>0; i--){
            pot=pot*base;
        }
        return pot;
    }
}

```