RWTH Aachen **SS 2012**
Lehrgebiet Theoretische Informatik Problem Set 4
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Analysis of Algorithms — Tutorial

Problem 4-1

The following program prints a lot of numbers. How many?

```
void snapl(int n) {
  if(n ≡ 0 || n ≡ 2) return;
  if(n ≡ 1) printf("8156\n");
  else {
    snapl(n − 2);
    snapl(n − 3);
    snapl(n − 2);
    snapl(n − 3);
    snapl(n − 2);
  }
}
```

Problem 4-2

Solve the following recurrence: Let $b_1 = b_2 = b_3 = 1$ and

$$b_n = 3b_{n-1} - 4b_{n-2} + 12b_{n-3} \text{ for } n > 3.$$

Homework Assignment 4-1 (10 Points)

Solve the following recurrence: Let $a_0 = 0$, $a_1 = 3$ and

$$a_n = 4a_{n-1} - 4a_{n-2} \text{ for } n > 1.$$

Homework Assignment 4-2 (10 Points)

Solve the following recurrence and find a nice representation of the solution (in a mathematical sense).

$$\begin{aligned} c_0 &= 2 \\ c_1 &= 4 \\ c_n &= c_{n-2}^{\log c_{n-1}} \end{aligned}$$