

Model Checking (SS 2023) Homework 1

Deadline: March 23, 2023, 4:00 pm

Send your solution to modelchecking@iaik.tugraz.at

You are given the following program P .

```
11: while  x > y do  
12:     y := y + 2  
13:     if y%4 == 0 then  
14:         x := x + 1  
15:     else  
16:         x := x + 2  
17:     end if  
18: end while  
19:
```

The initial value of x can be 0 or 2. The initial value of y is 0.

Task 1. [1 point] Write the formula S_0 that represents the set of initial states.

Task 2. [4 points] Write the formula C that represents the transition relation of P .

Task 3. [5 points] Draw the Kripke structure $M = (S, S_0, R, AP, L)$ that represents P .