



## Modeling and Analysis of Hybrid Systems - SS 2015

## Series 8

## Exercise 1

a) A 2-dimensional polyhedron  $P$  is defined by the following linear inequalities.

$$\begin{cases} -x & \leq & 0 \\ x + 2y & \leq & 6 \\ -x - y & \leq & -2 \\ x - y & \leq & 3 \\ -y & \leq & 0 \end{cases}$$

Please give the vertices of  $P$ .

b) Given a 2-dimensional rectangle  $R$  which is defined by the convex hull of the points  $(0, 0), (0, 1), (1, 1), (1, 0)$ . Please give the vertices of the convex hull of  $R$  and  $P$  (given in the previous exercise), and the linear inequalities which define it.