

# Mathematik für Informatiker I

## 9. Übungsblatt

1. Let a point be picked at random in the unit square. Compute the probability that it is in the triangle bounded by  $x = 0$ ,  $y = 0$ , and  $x + y = 1$ . 5 Punkte
2. A box contains 10 balls, numbered 1 through 10. A ball is drawn from the box at random. Compute the probability that the number on the ball was either 3, 4, or 5. 5 Punkte
3. If a point selected at random in the unit square is known to be in the triangle bounded by  $x = 0$ ,  $y = 0$ , and  $x + y = 1$ , find the probability that it is also in the triangle bounded by  $y = 0$ ,  $x = 1$ , and  $x = y$ . 5 Punkte
4. A box has 10 balls, 6 of which are black and 4 of which are white. Three balls are removed from the box, their color unnoted. Find the probability that a fourth ball removed from the box is white. Assume that the 10 balls are equally likely to be drawn from the box. 5 Punkte
5. Suppose a factory has two machines  $A$  and  $B$  that make 60% and 40% of the total production, respectively. Of their output, machine  $A$  produces 3% defective items, while machine  $B$  produces 5% defective items. Find the probability that a given defective part was produced by machine  $B$ . 5 Punkte