



STATISTISCH REDENEREN

Lab 2

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Course:

Statistisch Redeneren

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1 Kansrekening 2

1.1 Opgave 1

- (a) De lineaire functie $F(x)$ stijgt op dit interval van 0 naar 1. Dit geeft ons:

$$F(x) = \frac{x-3}{9-3} = \frac{x-3}{6} \quad (1)$$

Voor $2 \leq x \leq 8$.

- (b)

$$P([-10, 3]) = F(-10) - F(3) = 0 - \frac{3-3}{6} = 0 \quad (2)$$

- (c)

$$P([a, b]) = F(a) - F(b) = \frac{a-3}{6} - \frac{b-3}{6} = \frac{a-3-b+3}{6} = \frac{a-b}{6} \quad (3)$$

1.2 Opgave 2

- (a) $U = \{\text{'kop'}, \text{'munt'}\}$

- (b)

$$P(k) = \binom{n}{k} p^k (1-p)^{n-k} \quad (4)$$

- (c) Dit is de binomiale verdeling, met paramters n en p .

```
(d) # -----
# Authors: Tim van Zalingen (10784012)
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#
# Date:    7 April 2016
#
# File: 2d.py
# -----
from scipy.misc import comb

def chance(n, p):
    """
    Calculate the total chance given the number of throws (n)
    and the probability (p).
    """
    total = 0.0
    for k in range(n+1):
        total += comb(n, k, exact=False) * p**k * (1-p) ** (n-k)
    return total

def main():
    for n in range(1, 20):
        for p in [.0, .2, .25, .33, .5, .66, .75, .8, 1.]:
            print('(n,p):(%d,%f) -> %f' % (n, p, chance(n, p)))
```



```
if __name__ == '__main__':  
    main()
```