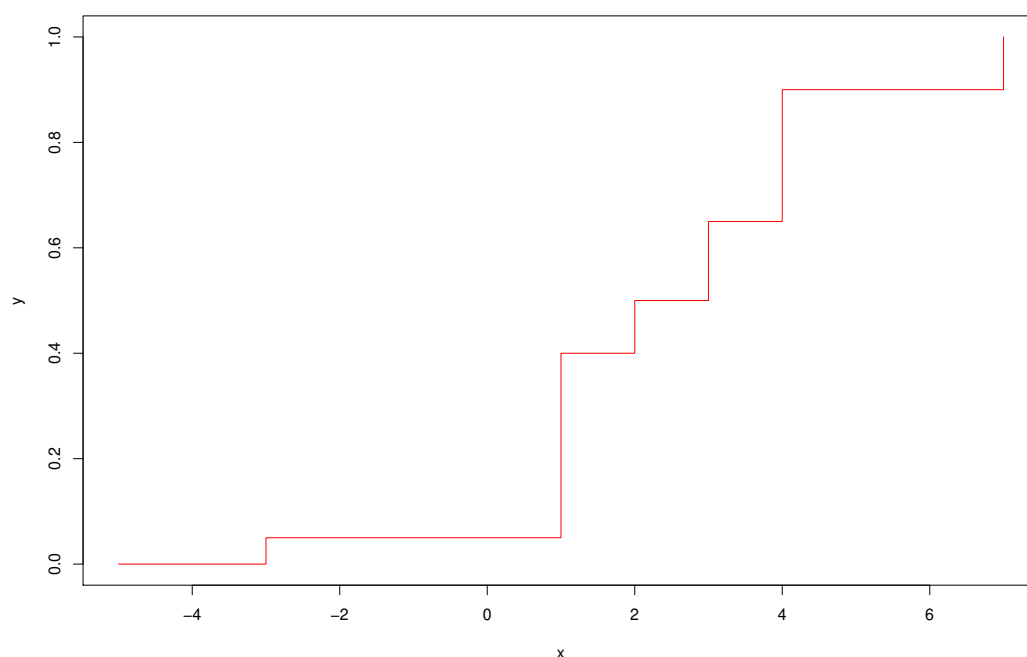# Examination

Exercise 1

Let X a random variable whose distribution function is given by :

1. Determine the distribution of the random variable X

2. Compute the variance of X

Exercise 2

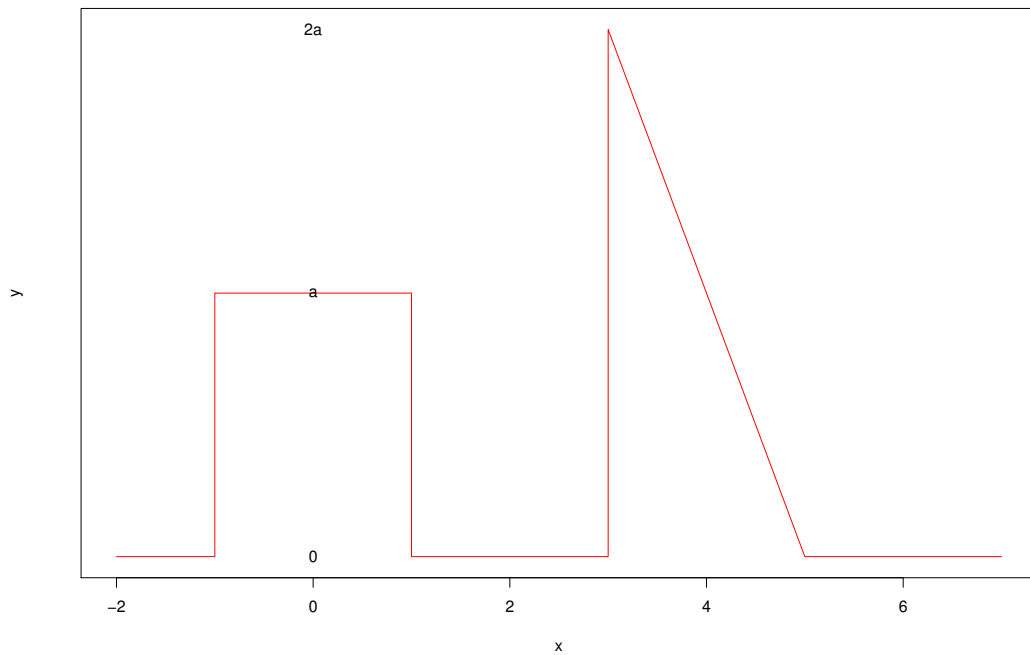Let X a random variable whose distribution is given by :

k	-1	2	3	4	5
P(X=k)	a	0.1	0.1	b	0.1

We assume that the expectation of X is equal to 1.8.

1. Determine a and b.

2. Determine the distribution function.

3. Compute $P(X \in \{-1, 4, 5\})$.

Exercise 3

Let X a random variable whose distribution is given by the density function :

1. Determine a.

2. Compute de variance.

3. Determine the distribution function.

4. Compute $P(X \in [-0.1, 0.7] \cup [3.5, 7])$.

Exercise 4

Let X a random variable whose distribution is a gaussian with parameters 10 for the expectation and 100 for the variance.

Compute :

1. $P(X \in [12.5, 23.1])$

2. $P(X \in [1.6, 6.9])$

3. $P(X \in [8.9, 9.5] \cup [22.4, 43.2])$