Lab Nr. 2, Probability and Statistics

Discrete Random Variables;
Probability distribution function, PDF and CDF

1.

- *disttool*: graphs of pdf's and cdf's of common distributions

- *Statistics Toolbox*, pdf and cdf;

2. Plot the graphs of the pdf and the cdf of a random variable X having a binomial distribution of parameters n and p (given by the user).

Application

A coin is tossed 3 times. Let X denote the number of heads that appear.

a) Find the probability distribution function of X. What type of distribution does X have?

b) Find the cumulative distribution function of X, F_X.

c) Find $P(X = 0)$ and $P(X \neq 1)$.

d) Find $P(X \leq 2)$, $P(X < 2)$.

e) Find $P(X \geq 1)$, $P(X > 1)$.

f) Write a Matlab code that simulates 3 coin tosses and computes the value of the variable X.