## Example 25 - Binomial

Five fair coins are flipped. If the outcomes are assumed independent find the probability function of the number of heads.

Example 26 - Binomial

It is known that light bulbs produced by a certain company will be defective with probability .01 independently of each other. The company sells the bulbs in packages of 10 and offers money-back guarantee that at most 1 of the 10 bulbs is defective. What percentage of packages will the company have to refund?

Example 27 - Binomial

Suppose a battleship has accuracy rate 0.7. The ship fires 10 times at 10 different targets. Assuming the shots are independent, what is the most likely number of targets hit by the ship?
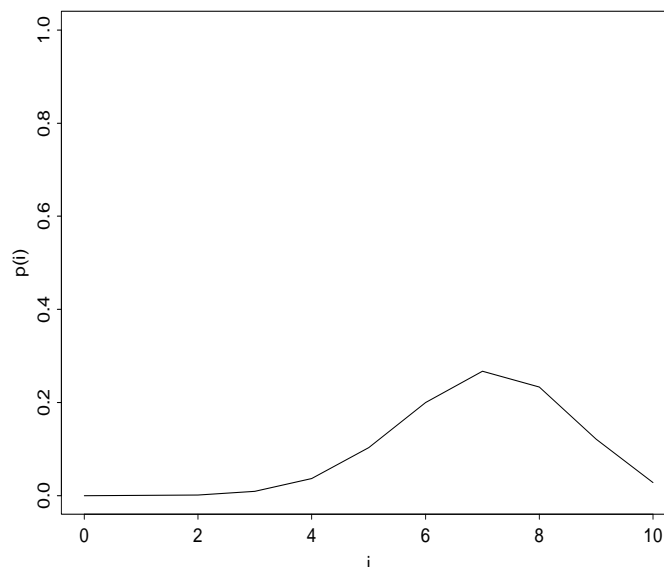
Examples of random variables that usually obey the Poisson probability law, the law of "rare events:

- The number of misprints on a page

- The number of people in a community living to 100 years of age

- The number of wrong telephone numbers that a person dials in a day.

- The number of horse riding accidents in a year

Example 28 - Poisson

Suppose that the number of finals with a maximum score in a statistics class has a Poisson distribution with parameter $\lambda = \frac{1}{2}$. What is the probability that there will be at least one such final in this class?