

### **Example 20 – Random Variables**

Suppose that three cards are drawn from an ordinary deck of 52 cards one-by-one at random and with replacement. Let  $X$  be the number of spades drawn; Find  $P(X = i), i = 0, 1, 2, 3$ .

### **Example 21 - Random Variables**

Three balls are to be randomly selected without replacement from an urn containing 20 balls numbered 1 through 20. If we bet that at least one of the drawn balls has a number larger than 17 what is our chance to win the bet?

### **Example 22 – Distribution function**

In the US the number of twin births is approximately 1 in 90. Let  $X$  be the number of births in a certain hospital until the first twins are born.  $X$ .

### **Example 23 - Distribution function**

Suppose that a bus arrives at a station between 10 and  $10\frac{1}{2}$  at random. Let  $X$  be the arrival time; find the distribution function of  $X$ .

### **Example 24 - Distribution function**

Suppose we flip twice a coin that has probability to land heads equal to 0.4. Let  $X$  be the number of tails. Calculate  $F(t)$ , the distribution function of  $X$ .