1. Cov(X, Y) = E(X - EX)\*(Y – EY) = E (X\*Y) – EX\*EY

corollary

Var(X) = (EX\*\*2) – (EX)\*\*2.

Var( X + Y) = Var X + Var Y + 2\*Cov(X,Y)

1. A dice is rolled n times. Find the correlation between the number of “1” and “2”.
2. The difference of two independent identically distributed (i.i.d) random variables has a symmetric distribution. Prove it. Does independence matter?
3. X and Y are independent random variables. X ~ Geom(p), Y ~ Geom(q). What’s the distribution of min(X, Y)?
4. 100 people buy train tickets. There are seats on the tickets, but all passengers except the last one sit in a random seat. The last one decides to take the place on the ticket. How many people will change their seat? Find the expected value if the disturbed person has to find their own seat in the ticket.

In the webinar some simple but useful formulas for variance and covariance will be obtained. We will find the distribution for the minimum of random variables and how many people will change their place if the last person in the train decides to take the place on the ticket.

The webinar will provide simple but useful formulas for variance and covariance. We will find the distribution for the minimum of random variables and how many people will change their seat if the last person on the train decides to take a seat on the ticket.

“100 people buy train tickets. There are seats on the tickets, but all passengers except the last one sit in a random seat. The last one decides to take the place on the ticket. How many people will change their seat? Find the expected value if the disturbed person has to find their own seat on the ticket.”

Try to solve it yourself.