Task. There are 11 guys and 9 girls in a math club. Two members of the club are chosen to represent the club for competition. Find the probability that the two members chosen are of the same sex.

Solution. The number of variants to choose two people from $11 + 9 = 20$ ones is equal to the binominal coefficient

$$C_{20}^2 = \frac{20!}{2!18!} = \frac{20 \cdot 19}{2} = 190.$$

We should compute the number of variants among these ones to choose two guys or two girls.

The number of variants to choose two guys from 11 is

$$C_{11}^2 = \frac{11 \cdot 10}{2} = 55,$$

and the number of variants to choose two girls from 9 is

$$C_9^2 = \frac{9 \cdot 8}{2} = 36.$$

Therefore the probability that the two members chosen are of the same sex is equal to

$$p = \frac{55 + 36}{190} = \frac{91}{190} \approx 0.47895.$$