

Task. An ordinary die is thrown. Find the probability that the number obtained is a multiple of 2 and the probability that it is less than 4.

Solution. Let X be the random variable equal to the number obtained on the die. Then for every $i = 1, \dots, 6$

$$P(X = i) = \frac{1}{6}.$$

Let A be the event that the number of the die is a multiple of 2. This may happen only when $X = 2, 4, 6$, hence

$$P(A) = P(X = 2) + P(X = 4) + P(X = 6) = \frac{3}{6} = 0.5.$$

Let B be the event that the number of the die is less than 4. This may happen only when $X = 1, 2, 3$, hence

$$P(B) = P(X = 1) + P(X = 2) + P(X = 3) = \frac{3}{6} = 0.5.$$