

Tutorial Sheet 21 (Events and Probability)

1. An ordinary die and two coins are thrown together. Find the probability that (a) the die shows an even number and the coins show different faces, (b) a prime number and at least one head is obtained.
2. Two dice are thrown simultaneously and the scores are the numbers shown on the dice. Find the probability that (a) the sum of the two scores is 8, (b) the difference of the two scores is 2, (c) the product of the two scores is a multiple of 4, (d) the sum of the two scores is 8 and the difference of the two scores is 2, (e) the difference of the two scores is 2 and the product of the two scores is a multiple of 4.
3. From a set of cards numbered from 1 to 50 a card is drawn at random. Find the probability that the number (a) is not divisible by 4, (b) is not divisible by 6, (c) is not divisible by 4 and 6.
4. In a town containing 100 houses, 72 households have a bicycle; 56 households have a bicycle and a motorcycle and 9 households do not own both bicycle and motorcycle. Find the probability that a household chosen at random owns a motorcycle only.
5. In a game, three ordinary dice are thrown. Find the probability that, in one throw, (a) all numbers are the same, (b) only two dice show the same number, (c) all numbers are different. In a complete turn, if the first throw results in just two dice showing the same number, then the die with different number is thrown again. If all numbers are different in the first throw, then all are thrown again. Find the probability that (d) all numbers are the same, (e) all numbers are different in a complete turn.
- *6. Nine coins of which three are gold and six are silver in a box. Three coins are selected and placed in bag A. The remaining coins are placed in bag B. Find the probabilities of each possible numbers of gold coins, from 0 to 3, in bag A. On a particular case it is known that one gold coin and two silver coins are in bag A, and that the remaining coins are in bag B. One coin is drawn from a bag selected randomly and put it into another bag. If one coin is then drawn from the last bag, find the probability that it is a gold coin.

*Optional