

Elementary Probability

1. When a die is thrown, what is the probability of getting
 - i. 5
 - ii. an odd number
 - iii. a number greater than 4?
2. A box contains 36 coloured balls. Twelve are red, 15 are blue, three are yellow and the rest are white. One ball is selected at random from the box. Calculate the probability of selecting a:
 - i. Red ball
 - ii. Blue Ball
 - iii. Yellow Ball
 - iv. White Ball
 - v. Given that the ball chosen is not red, calculate the probability that the selected ball is blue.
3. If one card is selected at random from a pack of 52 cards, what is the probability of getting
 - i. a king
 - ii. a diamond
 - iii. a picture card
 - iv. a black queen
 - v. an even number on the card?
4. A card is drawn at random from a normal pack of 52 playing cards. What is the probability that the card will be:
 - i. the nine of spades
 - ii. a red card
 - iii. a club
 - iv. a king
 - v. a picture card
 - vi. a black picture card
 - vii. an even number

- viii. not a queen
 - ix. a joker?
5. Tickets numbered 1 to 17 are placed in a box. If one ticket is drawn at random, what is the probability that it has
 - i. an odd number
 - ii. a 2 digit number
 - iii. a multiple of 3
 - iv. a perfect square?
 6.
 - i. A bag contains three red, three green and four blue discs. A disc is selected at random from the bag. What is the probability of selecting a blue disc?
 - ii. The selected disc is to be put back into the bag, plus a certain number of red discs. This causes the probability of selecting a red disc equal to $\frac{1}{2}$. Find the number of extra red discs that were placed in the bag.
 7. A letter is selected at random from the word ADDITION. Find the probability that the letter is
 - i. T
 - ii. I
 - iii. T or D
 - iv. a vowel
 8. A card is chosen at random from a set of 25 cards numbered from 1 to 25. What is the probability that the card chosen is a multiple of 4, given that it is greater than 15?
 9. A counter is drawn from a box containing 15 red, 10 black and 5 green counters. Find the probability that the counter is
 - i. red
 - ii. green
 - iii. red or green
 - iv. not red
 10. There are 80 members in a club; 32 males and 48 females. Four of the males, and eight of the females wear glasses. A club member is selected at random.
 - i. What is the probability that the club member is a:
 - (a) Male
 - (b) Female
 - (c) Person wearing glasses
 - (d) Female not wearing glasses
 - (e) Male wearing glasses

- ii. A male from the club is selected at random. What is the probability that he wears glasses?
 - iii. A member who wears glasses is selected at random.
 - (a) What is the probability that it is a female?
 - (b) All members who wear glasses resign from the club. What is the probability that a club member now selected at random is male?
- 11. Two unbiased dice are thrown. Find the probability that
 - i. the total is ten
 - ii. both numbers are odd
 - iii. the total is 4 or less
 - iv. the total is odd and greater than 6.
- 12. Make out a sample space for the possible outcomes when two coins are tossed. Find the probability of getting
 - i. 2 heads
 - ii. a head and a tail
 - iii. at least one tail
- 13. In a class of 30 pupils there are 16 boys and 14 girls. 4 of the boys and 3 of the girls wear glasses. If one student is selected from the full class, what is the probability of selecting
 - i. a boy
 - ii. a boy who wears glasses
 - iii. a girl who does not wear glasses?
- 14. The letters of the word EXERCISES are written on 9 cards and placed in a box. If a card is drawn at random, what is the probability that the letter on the card is
 - i. the letter E
 - ii. a vowel
 - iii. not the letter S
 - iv. the letter E or the letter S?
- 15. Two dice are thrown simultaneously. The scores are to be multiplied. If $P(n)$ is the probability that the number n is obtained, find
 - i. $P(9)$
 - ii. $P(4)$
 - iii. $P(12)$
- 16. In a particular game a player throws two fair dice together. If their total is 7 or 11 he wins. If their total is 2, 3, or 12 he loses. For any other total he neither wins nor loses.

- i. Find the probability of winning
 - ii. Find the probability of losing.
17. An experiment consists of tossing a coin and throwing a die. Make out a sample space of all the possible outcomes. Write down the probability of getting
- i. a head and an even number
 - ii. a tail and a multiple of 3
 - iii. a tail and a number greater than 4.
18. In a survey of 20 students, 12 studied physics, 7 studied physics and biology while 3 did not study either of these. Draw a Venn diagram to illustrate this and then write down the probability that a student chose at random studied biology.
19. Two ordinary fair dice, one red and one blue, are to be rolled once. Find the probability that
- i. the number showing on the red die will be 5 or 6
 - ii. the total of the numbers showing on the two dice will be 8
 - iii. the total of the numbers showing will be one-third of other possible totals.