

PROBABILITY

1. A bag contains 6 white and 4 red balls. Three balls are drawn one by one with replacement. What is the probability that all 3 balls are red?
 - A. $\frac{8}{125}$
 - B. $\frac{1}{20}$
 - C. $\frac{1}{30}$
 - D. $\frac{1}{120}$
2. A card is pulled from a deck of cards and the outcome noted. The card is then replaced, the deck is shuffled, and a second card is drawn and the outcome noted. What is the probability that both cards are Aces?
 - A. $\frac{1}{13^2}$
 - B. $\frac{{}^4C_2}{{}^{52}C_2}$
 - C. $\frac{{}^4P_2}{{}^{52}P_2}$
 - D. $\frac{1}{13}$
3. An urn contains 9 blue, 7 white and 4 black balls. If 2 balls are drawn at random, then what is the probability that only one ball is white?
 - A. $\frac{71}{190}$
 - B. $\frac{121}{190}$
 - C. $\frac{91}{190}$
 - D. $\frac{93}{190}$
4. Find the probability that in a random arrangement of the letters of the word 'UNIVERSITY' the two I's come together.
 - A. $\frac{1}{7}$
 - B. $\frac{3}{5}$
 - C. $\frac{5}{11}$
 - D. $\frac{1}{5}$
5. A and B play a game where each is asked to select a number from 1 to 5. If the two numbers match, both of them win a prize. The probability that they will not win a prize in a single trial is
 - A. $\frac{1}{5}$
 - B. $\frac{2}{5}$
 - C. $\frac{3}{5}$
 - D. $\frac{4}{5}$
6. I forgot the last three digits of a 7-digit telephone number. If I randomly dial the final 3 digits after correctly dialing the first four, then what is the chance of dialing the correct number?
 - A. $\frac{1}{1001}$
 - B. $\frac{1}{1000}$
 - C. $\frac{1}{999}$
 - D. $\frac{1}{900}$
7. What is the probability that a 2 digit number selected at random will be a multiple of 3 and not a multiple of 5?
 - A. $\frac{2}{15}$
 - B. $\frac{4}{15}$
 - C. $\frac{1}{15}$
 - D. $\frac{4}{90}$
8. When two dice are thrown simultaneously, what is the probability that the sum of the two numbers that turn up is less than 11?
 - A. $\frac{5}{6}$
 - B. $\frac{11}{12}$
 - C. $\frac{1}{6}$
 - D. $\frac{1}{12}$
9. When 4 dice are thrown, what is the probability that the same number appears on

- each of them?
- $\frac{1}{36}$
 - $\frac{1}{18}$
 - $\frac{1}{216}$
 - $\frac{1}{5}$
- An anti aircraft gun can fire 4 shots at a time. If the probabilities of the 1st, 2nd, 3rd and the last shot hitting the enemy aircraft are 0.7, 0.6, 0.5 and 0.4, what is the probability that 4 shots aimed at an enemy aircraft will bring the aircraft down?
 - 0.084
 - 0.916
 - 0.036
 - 0.964
 - A number is selected at random from 1st thirty natural numbers. What is the chance that it is a multiple of either 3 or 13?
 - $\frac{17}{30}$
 - $\frac{2}{5}$
 - $\frac{11}{30}$
 - $\frac{4}{15}$
 - There are 2 bags-one containing 3 one rupee coins, 6 five rupee coins and the other containing 2 one rupee coins, 7 five rupee coins. One bag is chosen at random and from that one coin is drawn at random. What is the probability that it is a 1 rupee coin?
 - $\frac{2}{9}$
 - $\frac{3}{9}$
 - $\frac{5}{9}$
 - $\frac{5}{18}$
 - If you pull 2 cards out of a deck, what is the probability that both are spades?
 - $\frac{1}{17}$
 - $\frac{1}{16}$
 - $\frac{1}{15}$
 - $\frac{1}{4}$
 - A can solve 80% of the problems given in an exam and B can solve 70%. What is the probability that at least one of them will solve a problem selected at random from the exam?
 - $\frac{21}{49}$
 - $\frac{12}{49}$
 - $\frac{2}{49}$
 - $\frac{47}{50}$
 - Eight horses are entered in a race. You randomly predict a particular order for the horses to complete the race. What is the probability that your prediction is correct?
 - $\frac{1}{8!}$
 - $\frac{1}{8}$
 - $\frac{8}{8!}$
 - None of the above
 - A bag contains 3 white balls and 2 black balls. Another bag contains 2 white and 4 black balls. A bag and a ball are picked random. The probability that the ball will be white is
 - $\frac{7}{11}$
 - $\frac{7}{30}$
 - $\frac{7}{15}$
 - $\frac{5}{11}$
 - What is the probability that the sum of two different single-digit prime numbers will not be prime?
 - 0
 - $\frac{1}{3}$
 - $\frac{2}{3}$
 - $\frac{1}{2}$
 - There are three similar boxes, containing
 - 6 black and 4 white balls.
 - 3 black and 7 white balls.
 - 5 black and 5 white balls.
 If you choose, one of the three boxes at random and from that particular box picks up a ball at random, and found that to be black, what is the probability that the ball picked up from the second box?
 - $\frac{14}{30}$
 - $\frac{3}{14}$
 - $\frac{30}{7}$
 - $\frac{1}{14}$
 - India plays two matches each with Pakistan and Australia. In any match the probabilities of India getting 0, 1 and 2 points

- are 0.45, 0.05 and 0.50 respectively. Assume that the outcomes are independent, the probability of India getting at least 7 points is
- 0.04
 - 0.0375
 - 0.0875
 - 0.0650
20. There are 6 positive and 8 negative numbers. Four numbers are chosen at random and multiplied. The probability that the product is a positive number is
- $\frac{500}{1001}$
 - $\frac{503}{1001}$
 - $\frac{505}{1001}$
 - $\frac{101}{1001}$
21. Four boys and three girls stand in queue for an interview. The probability that they stand in alternate positions is
- $\frac{1}{35}$
 - $\frac{1}{34}$
 - $\frac{1}{17}$
 - $\frac{1}{68}$
22. An experiment succeeds twice often as it fails. What is the probability that in the next 5 trials there will be 4 successes?
- 0
 - $\frac{16}{81}$
 - $\frac{80}{243}$
 - $\frac{16}{243}$
23. Two squares are chosen at random on a chess board. What is the probability that they have a side in common?
- $\frac{1}{18}$
 - $\frac{64}{4032}$
 - $\frac{63}{164}$
 - $\frac{1}{9}$
24. The probability that an arrow fired from a point will hit the target is $\frac{1}{4}$. Three such arrows are fired simultaneously towards the target from that very point. What is the probability that the target will be hit?
- $\frac{19}{64}$
 - $\frac{23}{64}$
 - $\frac{23}{67}$
 - $\frac{37}{64}$
25. There are three events A, B and C, one of which must and only can happen. If the odds are 8:3 against A, 5:2 against B, the odds against C must be
- 13 : 7
 - 3 : 2
 - 43 : 34
 - 43 : 77
26. Four different objects 1, 2, 3, 4 are distributed at random in four places marked 1, 2, 3, 4. What is the probability that none of the objects occupy the place corresponding to its number?
- $\frac{17}{24}$
 - $\frac{3}{8}$
 - $\frac{1}{2}$
 - $\frac{5}{8}$
27. A bag contains 10 balls numbered from 0 to 9. The balls are such that the person picking a ball out of the bag is equally likely to pick anyone of them. A person picked a ball and replaced it in the bag after noting its number. He repeated this process 2 more times. What is the probability that the ball picked first is numbered higher than the ball picked second and the ball picked second is numbered higher than the ball picked third?
- $\frac{3}{25}$
 - $\frac{18}{25}$
 - $\frac{4}{5}$
 - $\frac{1}{6}$
28. A die is biased in such a way that chance of a number showing up is proportional to the number. For example chance of getting a 6 is 6 times more than the chance of getting a 1 and thrice the chance of getting a 2. What is the probability of getting a prime number when this die is rolled?
- $\frac{10}{36}$
 - $\frac{11}{36}$
 - $\frac{10}{21}$
 - $\frac{11}{21}$

29. Two cards are picked from a pack of cards in a random order without replacement what is the probability that first card is a King and the next card is a spade?
- $\frac{4}{221}$
 - $\frac{1}{52}$
 - $\frac{4}{51}$
 - $\frac{1}{13}$
30. Three cards are drawn from a pack of cards without replacement. What is the probability that it consists of King, Queen or Ace?
- $\frac{3}{13}$
 - $\frac{8}{3325}$
 - $\frac{1}{52}$
 - $\frac{11}{1105}$
31. Out of a pack of 52 cards one is lost; from the remainder of the pack, two cards are drawn and are found to be spade. Find the chance that the missing card is a spade.
- $\frac{11}{50}$
 - $\frac{11}{49}$
 - $\frac{10}{49}$
 - $\frac{1}{5}$
32. In a shirt factory, processes A, B and C respectively manufacture 25%, 35% and 40% of the total shirts. Of their respective productions, 5%, 4% and 2% of the shirts are defective. A shirt is selected at random from the production of a particular day. If it is found to be defective, what is the probability that it is manufactured by the process C?
- $\frac{16}{69}$
 - $\frac{25}{69}$
 - $\frac{28}{69}$
 - $\frac{27}{44}$
33. A man is known to speak the truth 3 out of 4 times. He throws a die and reports that it is a six. Find the probability that it is actually a six.
- $\frac{3}{8}$
 - $\frac{1}{3}$
 - $\frac{2}{8}$
 - $\frac{4}{7}$
34. An insurance company insured 1500 scooter drivers, 2500 car drivers and 4500 truck drivers. The probability of a scooter, a car and a truck meeting with an accident is 0.01, 0.02 and 0.04 respectively. If one of the insured persons meets with an accident, find the probability that he is a scooter driver.
- $\frac{7}{56}$
 - $\frac{4}{57}$
 - $\frac{6}{49}$
 - $\frac{3}{49}$
35. A company has two plants which manufacture scooters. Plant I manufactures 80% of the scooters while Plant II manufactures 20% of the scooters. At Plant I, 85 out of 100 scooters are rated as being of standard quality, while at Plant II only 65 out of 100 scooters are rated as being of standard quality. If a scooter is of standard quality, what is the probability that it come from Plant I.
- 0.96
 - 0.84
 - 0.72
 - 0.60
36. A doctor is to visit a patient. From the past experience it is known that the probabilities of the doctor coming by train, bus, scooter or taxi are $\frac{1}{10}$, $\frac{1}{5}$, $\frac{3}{10}$ and $\frac{2}{5}$ respectively. The probabilities that he will be late are $\frac{1}{4}$, $\frac{1}{3}$, and $\frac{1}{12}$ if he comes by train, bus or scooter respectively but by taxi he will not be late. When he arrives he is late. What is the probability that he came by bus?
- $\frac{4}{5}$
 - $\frac{4}{7}$
 - $\frac{14}{20}$
 - $\frac{1}{3}$
37. Two cards are picked from a pack of cards in a random order without replacement what is the probability that one card is black and the other card is a Queen?
- $\frac{1}{13}$
 - $\frac{1}{52}$

- C. $\frac{4}{15}$
D. $\frac{1}{26}$
38. A problem on mathematics is given to three students whose chances of solving it are $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{1}{4}$ respectively. What is the chance that the problem will be solved?
A. $\frac{2}{3}$
B. $\frac{3}{4}$
C. $\frac{1}{3}$
D. $\frac{1}{2}$
39. In a horse race there were 18 horses numbered 1-18. The probability that horse 1 would win is $\frac{1}{6}$, that 2 would win is $\frac{1}{10}$ and that 3 would win is $\frac{1}{8}$. Assuming that a tie is impossible, find the chance that one of the three will win.
A. $\frac{47}{120}$
B. $\frac{37}{120}$
C. $\frac{119}{120}$
D. $\frac{1}{5}$
40. If the integers m and n are chosen at random from 1 to 100, then the probability that a number of the form $7^m + 7^n$ is divisible by 5 is
A. $\frac{1}{4}$
B. $\frac{1}{2}$
C. $\frac{1}{16}$
D. $\frac{1}{6}$

ANSWER KEY

1. A	2. A	3. C	4. D	5. D	6. B	7. B	8. B	9. C	10. D
11. B	12. D	13. A	14. D	15. A	16. C	17. C	18. B	19. C	20. C
21. A	22. C	23. A	24. D	25. C	26. B	27. A	28. C	29. B	30. D
31. A	32. A	33. A	34. D	35. B	36. B	37. A	38. B	39. A	40. A