

14 - Permutations & Combinations

1. What is the total number of different permutations of all the letters in the word APRIL?
A) 15 B) 40 C) 60 D) 120 E) 240
2. What is the total number of different permutations of all the letters in the word DOLLAR?
A) 720 B) 360 C) 240 D) 120 E) 60
3. In how many ways can 5 teachers of mathematics be assigned to 3 sections of an introductory math course if no teacher is assigned to more than one section?
A) 10 B) 24 C) 60 D) 72 E) 120
4. From a group of eight people, a team comprising of a Captain, a Vice-Captain and a Coach is to be selected. How many such different teams can be constituted?
A) 8 B) 21 C) 56 D) 112 E) 336
5. Three lottery tickets are to be drawn at random from a bunch of 20 to award first, second and third prizes. If no contestant can win more than one prize, what is the total number of ways in which the prizes can be awarded?
A) 115,280 B) 59,280 C) 19,760 D) 6,840 E) 57
6. How many different 3-member teams can be chosen from a group of 8 people?
A) 8 B) 21 C) 56 D) 112 E) 336
7. How many different 4-member teams can be chosen from a group of 10 people?
A) 5040 B) 2520 C) 840 D) 210 E) 34
8. Three couples are to be seated in a straight line on 6 chairs. In how many ways can they be seated if each couple is to sit together?
A) 5 B) 20 C) 24 D) 48 E) 120
9. I have 3 books by Dickens, 2 books by Salinger. In how many ways can they be arranged in a straight line on a shelf such that books by each author are put together?
A) 5040 B) 210 C) 144 D) 36 E) 12
10. There are 4 Pakistanis and 3 Indians who are to be arranged in a straight line. In how many ways can this be achieved if each nationality is to stand together?
A) 5040 B) 288 C) 144 D) 24 E) 12
11. In how many ways can a group of 2 men and 3 women be chosen from a group of 4 men and 5 women?
A) 18 B) 60 C) 120 D) 126 E) 252
12. Three boys and five girls are to form a line. What is the number of ways in which they can be arranged if the first is a boy and the last is a girl?
A) 40,320 B) 10,800 C) 5,040 D) 1,440 E) 720
13. Five boys are to be arranged in a straight line in such a way that the shortest boy is in the middle and the two tallest boys are at the ends. In how many different ways can they be arranged?
A) 120 B) 60 C) 30 D) 15 E) 4
14. A team of 5 members is to be chosen from 7 boys and 4 girls. Find the number of ways in which this can be done if the team has exactly 3 boys
A) 105 B) 210 C) 462 D) 84 E) 42
15. In how many ways can 6 people be seated around a round table?
A) 720 B) 360 C) 240 D) 120 E) 60

16. How many 3-digit numbers can be formed from the digits 0, 1, 2, 3, 4, & 5 if each digit can only be used once?
A) 720 B) 210 C) 180 D) 120 E) 100

17. How many 3-digit odd numbers can be formed from the digits 0, 1, 2, 3, 4, 5 & 6 if no digit can be used more than once?
A) 75 B) 105 C) 126 D) 108 E) 120

18. Three boys and four girls are to form a line. What is the number of ways in which they can be arranged if no two girls stand next to each other?
A) 144 B) 720 C) 1440 D) 2880 E) 5040

19. Six teams are to play against each other once in a tournament. How many matches will be played?
A) 720 B) 360 C) 120 D) 30 E) 15

20. Eight teams are to play against each other five times in a tournament. How many matches will be played?
A) 201,600 B) 40,320 C) 168 D) 140 E) 56

21. A restaurant menu lists 3 soups, 3 beverages and 5 desserts. In how many ways can a meal be ordered if each component is used once?
A) 30 B) 60 C) 150 D) 300

22. An automobile manufacturer offers 6 different models with the choice of 10 different exterior colors and 7 different interior colors. How many different cars does it offer?
A) 42 B) 60 C) 70 D) 140 E) 420

23. How many different arrangements of the letters in the word PEPPER are possible?
A) 720 B) 360 C) 120 D) 60 E) 6

24. There are 3 roads from PECHS to Saddar and 5 roads from Saddar to Clifton. Faraz is driving from PECHS to Clifton through Saddar and back to PECHS (through Saddar again). How many possible routes can he take if he does not use any road twice?
A) 225 B) 180 C) 120 D) 72 E) 36

25. A menu offers a choice of 5 soups, 8 main courses, 4 desserts and 3 beverages. How many different meals comprising of 2 soups, 1 main course, 3 desserts and 2 beverages can be made?
A) 60 B) 120 C) 360 D) 480 E) 960

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