

Counting, permutations, combinations and probability test review

1. How many odd 4 digit positive integers can be written using the digits 3,4,5,6, and 7?
2. In how many ways can 4 cards from a deck of 52 cards be laid in a row (order matters)?
3. How many 7 digit telephone numbers can be made if the first digit is 5, the second digit is even, and the last five digits can be any number from 0 to 9?
4. There are 10 people in a group of apocalypse survivors. 3 of them need to go out and search for more supplies. How many different search groups can be created?
5. How many multiples of 3 less than 50 can be formed from the digits 1, 4, 5, and 6?
6. How many different ways can you arrange the letters of the word UNDEAD?
7. In how many ways can 8 books be arranged on a shelf?
8. A basketball team has 7 players, a coach, and a mascot. How many different combinations of 4 people could be chosen to kneel down in the front row for the picture?
9. In a group of 9 people, each person shakes hands with everyone else. How many handshakes are there?
10. How many whole numbers less than 400 can be formed using the digits 1,2,3, and 4?
11. At in-n-out, I can have my choice of 3 different burgers, 2 different styles of fries, and 7 different drinks. How many complete meals (a burger, a side of fries, and a drink) can be chosen from this menu?

For 12 - 14, three coins are flipped.

12. If HHH represents one event, list the other possible events in the sample space.
13. What is the probability that all 3 are heads?
14. What is the probability that there is at least 2 heads?
15. You have a complete 52 deck of cards. What is the probability of drawing a spade?

For 16-19, two regular six sided dice are rolled.

16. What is the probability of rolling the sum of 8 on the first try?
17. What is the probability of getting the sum of less than 14?
18. What is the probability that the sum is less than 6?
19. What is the probability that the first die will be a 6 or the sum of both dice is less than 5?

For 20-23 a bag contains 5 red, 6 green and 3 blue marbles.

20. If one marble is drawn, what is the probability of drawing a green marble?

21. If 2 marbles are drawn, what is the probability of drawing one red and one green marble?

22. If two marbles are drawn, what is the probability of drawing a blue one first and then a red one second?

23. If 2 marbles are drawn, what is the probability of drawing one red and one green in any order?

24. How many different signals can be made by displaying 5 flags on a flagpole? The flags differ only in color: there are 3 red and 2 blue.