Each event can occur in the given number of ways. Find the number of ways all of the events can occur.

1. Event 1: 3 ways; Event 2: 7 ways
2. Event 1: 8 ways; Event 2: 5 ways
3. Event 1: 4 ways; Event 2: 2 ways; Event 3: 9 ways
4. Event 1: 6 ways; Event 2: 7 ways; Event 3: 4 ways

For the given configuration, determine how many different computer passwords are possible if (a) digits and letters can be repeated, and (b) digits and letters cannot be repeated.

5. 3 digits followed by 4 letters
6. 2 digits followed by 5 letters
7. 1 letter followed by 6 digits
8. 4 letters followed by 4 digits

Evaluate the expression.

9. \(5!\)
10. \(10!\)
11. \(9!\)
12. \(14!\)
13. \(5(3!)\)
14. \(4! \cdot 6!\)
15. \(\frac{7!}{3! \cdot 2!}\)
16. \(\frac{11!}{(6 + 2)!}\)

Find the number of permutations.

17. \(\binom{4}{3}\)
18. \(\binom{7}{5}\)
19. \(\binom{8}{4}\)
20. \(\binom{9}{0}\)
21. \(\binom{10}{3}\)
22. \(\binom{9}{6}\)
23. \(\binom{14}{7}\)
24. \(\binom{12}{12}\)

Find the number of distinguishable permutations of the letters in the word.

25. MATH
26. SOUTH
27. BALL
28. ODD
29. SPANISH
30. MINNESOTA
31. DELAWARE
32. LETTERS

33. Men’s Suits A men’s department store sells 3 different suit jackets, 6 different shirts, 8 different ties, and 4 different pairs of pants. How many different suits consisting of a jacket, shirt, tie, and pants are possible?

34. Batting Order A baseball manager is determining the batting order for the team. The team has 9 players, but the manager definitely wants the pitcher to bat last. How many batting orders are possible?

35. Chore Your chores for the week are to cut the grass, wash the car, clean your room, clean the garage, and shine your shoes. You are to do 1 chore each day from Monday through Friday. You can do each chore on whatever day you want, except that you must wash the car either Thursday or Friday. In how many different orders can you perform your chores?