

1. How many different locker combinations can you have if your padlock has the numbers 0-39 on it and there is no repetition among the numbers? There are 3 numbers on the lock.

59,280

2. In a pile of 8 cards, how many different ways could you choose three of them?

56

3. How many ways can the word "triangle" be misspelled, if all the letters are used and the only thing the speller knows is that it begins with a "t"?

5039

4. Timmy's mom brought home 6 different candy bars. She told Timmy that he could pick any 2 out of 6 for himself. How many different ways can he do this?

15

5. How many different 5-member volleyball teams can be formed from 9 players?

126

6. The executive board of the senior class has eight members. From these eight, 3 of the officers must be chosen: a president, a secretary, and a treasurer. How many different ways can 3 officers be chosen?

336

7. Using the standard English alphabet having "a", "e", "i", "o", and "u" as the vowels, how many different 4-letter words can be written having a consonant for the first letter, a vowel for the second letter, any type for the third letter, and a consonant for the last letter?

57,330

8. A committee of five members, three boys and two girls, is to be formed. There are eight boys to choose three from and seven girls to choose two from. How many different committees can be formed?

1176

9. A committee is formed with 2 Republicans and 1 Democrat. If there are five Republicans to choose from and four Democrats to choose from, how many possible committees are there?

40

10. In a certain lottery called "Pick 5", you choose 5 numbers, each between 1 and 40, for your pick. You may not pick repeated numbers. How many different arrangements of the five numbers are there?

658,008

11. How many 4-letter arrangements are there from the word "GUSTO" if letters are not repeated? How many if the letters can be repeated?

No repetition: 120

Repetition: 625

12. How many orders of finish are possible in 12-horse race?

479,001,600

13. A restaurant offers 5 choices of appetizer, 10 choices of main meal and 4 choices of dessert. A customer can choose to eat just one course, or two different courses, or all three courses. Assuming all choices are available, how many different possible meals does the restaurant offer?

329

14. The Rails Club, a group of 25 train fanatics, is to choose four of their members to be on the Board of Directors. How many different possible boards could the Rails choose? How many different possible boards could the Rails choose if there must be a Chairman, Vice-Chairman, Treasurer, and Secretary?

12,650

303,600

15. Using the word "Sunday", how many arrangements begin with an "s" and end with a "y"?

24

15. If ${}_nC_2 = 21$, find the value of n . *SHOW YOUR WORK. DO NOT GUESS & CHECK WITH YOUR CALCULATOR.*

$$n = 7$$

16. In how many ways can a committee of 5 be chosen from 10 people?

A. 252

B. 2,002

C. 30,240

D. 100,000

17. A password consists of two letters of the alphabet followed by three digits chosen from 0 to 9. Repeats are allowed. How many different possible passwords are there?

A. 492,804

B. 650,000

C. 676,000

D. 1,757,600

18. Identify the following for f .

$$f(x) = \frac{(x+8)(x-3)(x-2)}{(x-3)(x+2)}$$

19. Solve for x :

$$\frac{3}{x} + \frac{6}{x-1} = \frac{4x+2}{x^2-x}$$

- d. Removable discontinuities

when $x = 3$

\emptyset

- e. Essential discontinuities

when $x = -2$

- f. x -intercept(s)

$(-8, 0)$ & $(2, 0)$