

Permutation and Combinations

1. How many four-digit number can be formed from the digits 2,4,6 and 7 without repetition?
2. How many four-digit number can be formed from the digits 1,3,5,6,8 and 9 without repetition?
3. The diagram shows five numbered cards.

1	2	4	5	7
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How many different three-digit number can be formed if

- a. There is no restriction
 - b. The odd number is formed
4. The diagram shows five letter cards

A	B	C	D	E
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A four-letter code is to be formed from the given letters

How many different codes can be formed if

- a. No condition is imposed
 - b. The code must starts with a vowel
 - c. The code ends with letter 'B'
5. The diagram shows six letter cards

B	E	A	U	T	Y
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Three of the cards are chosen to form a code. Calculate the number of different codes can be formed if

- a. The code starts and ends with consonant
 - b. The code must consists of letter 'Y'
6. The diagram shows seven cards with different digit

1	2	3	4	5	6	7
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Calculate how many different five-digit number can be formed if

- a. The even numbers are formed
 - b. The numbers must be more than 30000
7. Three boys and five girls are arranged in a row for group photograph. How many different arrangements can be formed if
 - a. They are arranged randomly
 - b. Three boys sit next to each other

8. The diagram shows five cards with different letter

S	M	A	R	T
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- a. Find the number of possible arrangements, in row, of all the letters
 - b. Find the number of these arrangements in which the letters A and T are side by side
9. The diagram shows five numbered cards

2	4	5	7	9
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How many different three-digit codes can be formed if the codes do not consist of digit "5"

10. The diagram shows four numbered cards

0	2	6	7
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A three-digit number is to be formed using three of these cards

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Find

- a. The number of different three-digit number that can be formed
 - b. The number of different three-digit even numbers that can be formed
11. There are 4 different title English books and 4 different title Malay books to be arranged in a shelf. How many arrangement can be formed if
- a. All Malay books are arranged together
 - b. English books and Malay books are side by side
12. The diagram shows six cards with different digit

2	3	4	5	6	7
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Calculate how many different four- digit numbers can be formed if

- a. The numbers are less than 5500
 - b. The odd numbers which more than 4000 are formed
13. The diagram shows five numbered cards

2	3	5	7	8
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How many three- digit password can be formed if the password

- a. Is an odd number
 - b. Less than 350
14. The diagram shows five cards with different digit

0	3	6	7	8
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A four- digit number is formed by using these cards. Find

- a. The different numbers can be formed
 - b. The different odd numbers can be formed
15. There are two boys and three girls need to be arranged in a row. Find the number of ways to arrange these five people in a row if
- a. One of the girls must sit at the middle
 - b. The boys sit next to each other
16. The diagram shows seven cards with different letter

S	E	C	T	I	O	N
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A four-letter code is to be formed from the cards.

Calculate the number of different codes can be formed if

- a. The codes must consist of letter 'S'
 - b. The codes must consist at least two vowels
17. The diagram shows seven letter cards

H	O	T	M	A	I	L
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A password with six letters is formed from these cards

Find the number of different password can be formed if

- a. The password must consist of letters 'H' and 'T'
- b. The vowel and the consonant are next to each other

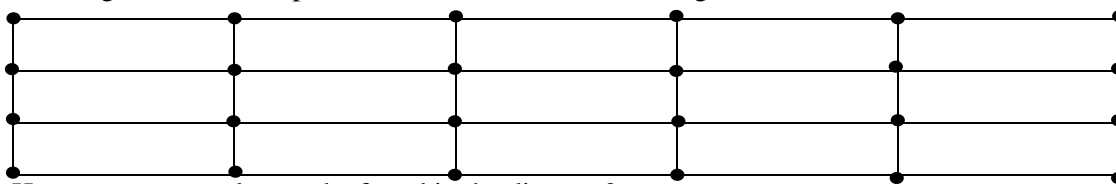
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18. The diagram shows the seven letter cards

S	U	C	C	E	S	S
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How many different seven-letters codes can be formed from these cards?

19. A student wants to borrow two out of five books from the library. How many different ways he can borrow the book?
20. How many 5 people group can be formed from the 8 people for attending the competition of mathematics quiz?
21. A group of dancer formed by 3 boys and 4 girls. Calculate the number of the different dancer groups can be formed if these 7 dancers are chosen from a group of 6 boys and 9 girls
22. How many different ways to divide 9 different flavour sweets equally to the 3 people?
23. A committee of Parent-Teacher Association is made up of 6 members chosen from 7 teachers and 8 parents. Determine the number of ways can the committee be formed if
- It contains exactly 3 teachers
 - At least four parents are members
24. A basketball team in SMK Kahang consists of five players. These five players are chosen from four form 5 students, six form 6 students and two form 3 students. Calculate the number of different ways the team can be formed if
- There is no restriction
 - The team contains one form 3 student
 - The team at least has three form 5 student
25. A team consists of 8 members which chosen from 5 male and 6 female. Calculate the number of different team can be formed if
- The number of male same with the female
 - Exactly 3 male are chosen as members
26. The diagram shows the points are connected with the straight lines



How many rectangles can be found in the diagram?

27. A committee of science society consists of 9 people. The committee is selected from 7 boys and 6 girls. Find the number of different ways to form the committee if
- At least 5 girls are committee
 - The number of boys must more than the number of girls
28. A tour team is made up by 8 students chosen from 5 Malay students, 4 Chinese students and 3 Indian students. Calculate the number of ways to form the team if
- The team without any Indian students
 - The number of Malay students must equal to the number of Chinese students

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29. A study group consists of 7 students. The group will be chosen from 8 boys and 5 girls. Find the different groups that can be formed such that each team
- Consists of 3 boys
 - Not more than 2 girls

30. The table below shows the subjects can be taken by a candidate in an examination

Main subject	Elective subject
<ul style="list-style-type: none"> • Bahasa melayu • English • Sejarah • Mathematics • Physics • Biology • chemistry 	<ul style="list-style-type: none"> • prinsip perakaunan • ekonomi asas • Pendidikan seni • Additional mathematics • perdagangan

A candidate wants to select 8 subjects from these subjects. Find the number of different ways to select the subjects if

- Bahasa Melayu, English, Sejarah and Mathematics are compulsory subjects
 - At least five main subjects is taken
31. The table below shows the different types of bag and shoes are selling in a shop

Types of bag	Types of shoes
A	W
B	X
C	Y
D	Z
E	

A man needs to buy 6 different items from the shop.

Calculate the number of different ways of how to select the items if

- The bag of type B must be chose
 - He buys at most 4 bags
32. A box contains 3 different types of pen and 4 different titles of book. A student wants to choose 5 items from the box. How many number of ways in which the 5 items can be selected if
- The number of pen must more than the book
 - At least 2 books are selected
33. A pack of gift is packed by choosing the items from 5 different title books, 4 different shirts and one blue pen. Find the number of ways such that different gift can be packed if
- There is only six items in the pack
 - There is only five items in the pack which must include the pen
34. A committee consists of 5 members chosen from 4 monitors, 6 librarians and 7 prefects. How many different ways to form the committee if
- The committee contains exactly 3 monitors
 - No any prefect is selected
35. There are six different coloured balls in a box and one of the balls is red colour. Calculate
- The number of ways the 3 balls can be chosen from the box
 - The number of ways at least 4 balls can be chosen from the box and one of these balls is red colour