GRE Prep

Permutation and Combination

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1. In how many ways can we select 2 boys and 3 girls from a group of 5 boys and 6 girls?

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2. In how many ways can we select 2 boys and 3 girls from a group of 5 boys and 6 girls, such that John who is one of the boys will definitely be selected and Maham who is one of the girls must not be selected?

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3. 5 particular points lie on the circumference of a circle.

Quantity A	Quantity B
Number of triangles that can be made using the 5 points	Number of line segments that can be made using the 5 points

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4. In how many ways can you make 5 people stand in a straight line such that Kieth who is a part of the group always stands in the middle of the line?

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5. In how many ways can a host invite at least one of his 10 friends to a party?

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6. In how many ways can you send 3 children to any of the 5 classrooms, such that any classroom can be left empty?

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7. How many different 3-digit positive even numbers can be formed without repeating the digits?

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8. In how many ways can the University XYZ give 3 scholarships, one each of $30,000, $20,000, and $10,000 to 3 different applicants from a pool of 12 applicants?

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9. How many 3-digit positive numbers are there in which all digits are even?

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10. In how many ways can 4 people sit around a circular table?

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11. How many arrangements of the word VIBGYOR are possible such that ‘O’ is in the middle but ‘I’ is not next to ‘O’?

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12. How many different ways to arrange all the letters of the word "MIRACLE" such that vowels are always together?

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13. How many different ways to arrange all the letters of the word "MIRACLE" such that vowels are not together?

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14. How many different ways to arrange all the letters of the word "MIRACLE" such that none of the vowels are together?

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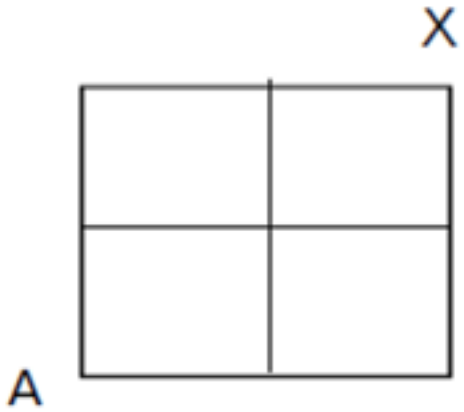
15.



In the figure, how many paths are there from A to X if the only ways to move are up and right?

A. 4
B. 5
C. 6
D. 8
E. 9

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16. In a class of 20 students, there are 5 boys and 15 girls.

Quantity A	Quantity B
The number of different ways in which a group of 4 students can be selected such that atleast 1 boy is selected	$^{20}C_5$

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17. A history exam features five questions. Three of the questions are multiple-choice with four options each. The other two questions are true or false. If Caroline selects one answer for every question, how many different ways can she answer the exam?

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18. A circle has 8 points on its circumference.

Quantity A	Quantity B
Number of different pentagons that can be formed can be formed using these 8 points	Number of different triangles that using these 8 points

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19. A 10-student class is to choose a president, vice president, and secretary from the group. If no person can occupy more than one post, in how many ways can this be accomplished?

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20. BurgerTown offers many options for customizing a burger. There are 3 types of pattice and 7 condiments: lettuce, tomatoes, pickles, onions, ketchup, mustard, and special sauce. A burger must include pattice but may include as many or as few condiments as the customer wants. How many different burgers are possible?

    A. $8!$

    B. $(3)(7!)$

    C. $(3)(8!)$

    D. $(8)(2^7)$

    E. $(3)(2^7)$

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21. In how many ways can you arrange Alice, Beth, Clan and Dony in a line so that Clan is on the left of Beth?

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22. In a team meeting of 12 members, how many handshakes are exchanged if each member shakes hands exactly once with each of the other member in the room?

    A. 12

    B. 22

    C. 66

    D. 132

    E. 244

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23. A state issues automobile license plates that begin with two letters selected from a 26- letter alphabet, followed by four numerals selected from the digits 0 through 9, inclusive. Repeats are permitted. For example, one possible license plate combination is GF3352.

Quantity A	Quantity B
The number of possible unique license plate combinations	6,000,000

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24. A palindromic number is a number (such as 16461) that remains the same when its digits are reversed.

Quantity A	Quantity B
Number of 5-digit palindrome numbers	900

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25. How many integers between 2,000 and 3,999 have a units digit as a prime number?

Thank you