Answer on Question #82675 – Math – Combinatorics | Number Theory

Question

Number greater than or equal to 1000 but less than or equal to 4000 is formed using the digits 0, 1, 2, 3, 4 (repetition allowed) is....

Solution

Since the number must be greater than or equal to 1000 and less than or equal to 4000, it must consist of four digits. If the first digit is "4", then the only option is 4000, otherwise the number will be greater than 4000. We also believe that the number cannot begin with the digit "0".

For other variants of the first digit ("1", "2", "3") we can continue the number in any way, all numbers, created with "0", "1", "2", "3" and "4" will comply with the conditions.

a) 0 numbers starting with "0"

b) "4000" - the only one number starting with "4"

c) 3 * 5 * 5 * 5 = 375 - number of options to create a number starting with "1" / "2" / "3".
3 variants for the first digit, 5 variants for second, third and forth.

1 + 375 = 376 variants

Answer: 376 variants.