

For all interested persons

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Prime numbers mathematical formula solution

Below I give the solution first, where are the prime numbers and secondly how, starting from an even or odd, positive or negative number, using mathematical formula, the next prime number is found.

1. Where are the prime numbers

To know where the prime numbers are on a set of positive or negative numbers, the decimal number system must be determined with respect to its basics first.

The decimal number system has the following basics:

- The number 1 is the first positive number and the first prime number. The number 1 is also the base (radix) of all the positive even and odd numbers. Therefore, the prime numbers are defined by the fact that in the number of all numbers they are only divisible by them self and inevitably by the number 1.
- The number 2 is the second positive number and the second prime number. The number 2 is also the base (radix) of all the positive even number.
- The number 3 is the third number, and the third positive prime number. The numbers 5 and 7 are the third and fourth positive odd number, and the fourth and fifth prime number. The numbers 3, 5 and 7 are the base (radix) of all positive odd numbers that are not primes.
- The numbers 2, 3, 5 and 7 form the base (radix) of all positive even and odd numbers that are not primes.

Where are the prime numbers:

- Prime numbers are therefore not by 2, 3, 5 and 7 divisible, but only by the number 1 and itself. Their base number can only be the number 1. Prime numbers therefore are numbers, which result not of a multiplication of the second to fifth prime, but only by the first prime number 1.

- All primes are therefore in the interstices of the with... numbers multiplied numbers 2, 3, 5 and 7.
- Primes are always odd numbers except for the prime 2. If they were even numbers, they may be divided by the number 2, so the condition would no longer be satisfied that they only can be divided by the number 1 and itself. Therefore, for simplicity, all even and odd numbers multiplied by 2 can be omitted.
- It is also clear that the prime numbers are always odd numbers that cannot be divided by 3, 5 or 7.

First step solution

Prime numbers are thus always in the interstices of all by positive or negative odd numbers multiplied positive or negative numbers 3, 5 and 7.

Consequently, all prime numbers are positive or negative odd numbers in the interstices of the by positive or negative odd numbers multiplied, positive or negative numbers 3, 5 and 7.

These results can be illustrated by the following tables (only a section starting with the positive odd numbers, followed by the negative odd numbers):

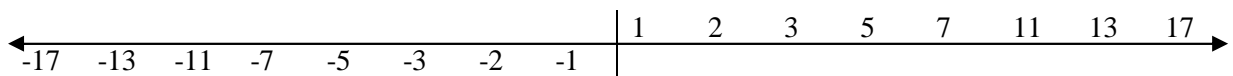
		positive multipliers												
		3	5	7	9	11	13	15	17	19	21	23	25	27
odd basic numbers	3	9	15	21	27	33	39	45	51	57	63	69	75	81
	5	15	25	35	45	55	65	75	85	95	105	115	125	135
	7	21	35	49	63	77	91	105	119	133	147	161	175	189
		negative multipliers												
		-3	-5	-7	-9	-11	-13	-15	-17	-19	-21	-23	-25	-27
odd basic numbers	3	-9	-15	-21	-27	-33	-39	-45	-51	-57	-63	-69	-75	-81
	5	-15	-25	-35	-45	-55	-65	-75	-85	-95	-105	-115	-125	-135
	7	-21	-35	-49	-63	-77	-91	-105	-119	-133	-147	-161	-175	-189

The prime numbers are now therefore between these odd positive or negative numbers, which result all from multiplication of the odd positive or negative basic numbers with the infinite multipliers, for example 11 and 13 are located between 9 and 15 or -11 and -13 between -9 and -15, 17 and 19 are located between 15 and 21 or -17 and -19 between -15 and -21 and so forth.

2. Verbalized prime formula

Based on the foregoing, the following function can be formulated to determine any prime number. Some basic explanations are premised:

- For the said function, it doesn't matter whether the output number (ON) is an even or odd, positive or negative number.
- Prime numbers can therefore be not only positive, but also negative.



- The additional number (AN), which is added to or subtracted from ON can be an even or odd, positive or negative number.
- With the function can, starting from an even or odd, positive or negative ON by adding or subtracting an even or odd, positive or negative number be determined the next prime number.

Second step solution

The prime numbers function is verbalized as follows:

PN = if (ON +/- AN) is not divisible through 2 or 3 or 5 or 7

or

if (ON +/- AN) is not divisible through 2 or 3 or 5 or 7, then PN (ON +/- AN), otherwise "no PN"

Abbreviations:

PN = positive or negative prime number
 ON = even or odd, positive or negative output number
 AN = even or odd, positive or negative additional number

3. Proof

The decimal numeral system is composed of the digits 0 through 9. All other numbers and already the digits or numbers 4, 6, 8 and 9, except for the prime numbers, are multiplications of numbers 2 to 7.

Therefore all positive or negative numbers, which are not divisible by 2, 3, 5 or 7, are prime numbers.