

The Oldest Unsolved Problem

PON Theory:

Do any odd perfect numbers exist?

A perfect number is when:

$$(2^p - 1) * 2^{p-1}$$

Where $(2^p - 1)$ is a prime number.

The first 8 perfect numbers is:

#	Perfect number	Formula	p
1	6	$2^1 * (2^2 - 1)$	2
2	28	$2^2 * (2^3 - 1)$	3
3	496	$2^4 * (2^5 - 1)$	5
4	8,128	$2^6 * (2^7 - 1)$	7
5	33,550,336	$2^{12} * (2^{13} - 1)$	13
6	8,589,869,056	$2^{16} * (2^{17} - 1)$	17
7	137,438,691,328	$2^{18} * (2^{19} - 1)$	19
8	2,305,843,008,139,952,128	$2^{30} * (2^{31} - 1)$	31

An odd number must be:

$$N = 2^{p-1}(2^p - 1)$$

There 2^{p-1} is a prime number.

In the PON Theory it's believed that there does not exist any odd perfect nummber.

PON stands for Perfect Odd Number.