

Composite numbers

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(<https://masudpromotion.jimdofree.com>)

$$\frac{1}{2} \lim_{n \rightarrow \infty} \left(\prod_{k=1}^n \left(\frac{C_{[k]}^2}{C_{[k]}^2 + 1} \right) + \prod_{k=1}^n \left(\frac{C_{[k]}^2 + 1}{C_{[k]}^2} \right) \right) = \sqrt{2}$$

$\because C_{[k]} = k$ th Composite number

k	P(k)	C(k)
1	2	1
2	3	4
3	5	6
4	7	8
5	11	9
6	13	10
7	17	12
8	19	14
9	23	15
10	29	16
11	31	18
12	37	20
13	41	21
14	43	22
15	47	24
16	53	25
17	59	26
18	61	27
19	67	28
20	71	30
21	73	32
22	79	33
23	83	34
24	89	35
25	97	36
...

That's all (proof end)