$(x-1)$

AKS-Test :- $(x-1)^p - (x^p - 1)$

if all coefficients are divisible by p then p is prime.

$\sqrt{N}$

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total factors $\leq \sum N_i$

$\frac{n}{i}$

$i \times \frac{n}{i}$

b

$\frac{n}{a}$

$1 \times b = n$

$a =$

$b = \frac{n}{a}$

$ab = n$

$b = \frac{n}{i}$

fermet Little theorem

If P is prime, $1 \leq a < P \Rightarrow a^{P-1} \equiv 1 \bmod P$

try lots of a's ; if always holds p is probably prime.

AKS-Test :- $(x-1)^P - (x^P - 1)$

if all coefficients are divisible by p then p is prime.

$(x+1)^p - x^p - 1$

If coeff of x is divisible by p then p is prime else not.

$(x-1)^p$

$(x-1)(x-1) =$

x^2

0 0 0 1 0 0 0

1 1   1

1 2 1   0 1 1 0

1 3 3 1   0 1 2 1 0

1 3 3 1 0

0 0 0

Pascals triangle :

1

assume that there is whole a lot of zero both side of this one

R	
1	... 0 0 0 + 1 + 0 0 0 ...
2	0 0 1 1 0 0
3	1 2 1
4	1 3 3 1
5	1 4 6 4 1

this is the coff- of polynomial

x^0	
1 x^1	2^0
1 1 x^2	2^1
1 2 1	2^2
1 3 3 1	2^3
1 4 6 4 1	2^4

sum of pascall triangle rows are 2^n, $n = 0, 1, 2, \ldots$

string of pascall triangle rows is $11^n \Rightarrow n = 0, 1, 2, 3, 5$

↘ limited

Hocky Stick

fibanacci sequence shallow diagonal method

1   1

1 1   1

1 2 1   2

1 3 3 1   3, 5

1 4 6 4 1   8

1 5 10 10 5 1   13

1 6 15 20 15 6 1   21

1   1

continuously   alternative

$$(-1)^{\frac{4\Gamma(x)+4}{x}} - 1$$

only returns 0 if prime

$$(-1)^{\frac{\Gamma(x)+1}{x}} + 1$$

$$\frac{(x-1)!}{x} \qquad n = 7$$

$$\frac{7 \times 6!}{7} = \frac{6!}{7} \qquad \frac{720}{7}$$

Not proved yet

$$\sin\left(\pi \frac{\lfloor x}{x}\right) = 0$$

x will be composite, else x is prime

-1

for $4 \neq -1$

Alternatively

$$\cos^2\left(\frac{\pi}{4}\right) \sin^2\left(\frac{\pi\,\Gamma(x)}{x}\right) = 1 \quad \text{prime}$$

$$= 0 \quad \text{composite}$$

More Rectified: $(-1)^\wedge\left(\frac{4\lfloor x + 4}{x}\right) - 1$, x = prime the fn = 0 else some other value