

AKS-Test \circ_2

$(x-1)^p$

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

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

Total

factors

 \leq $\sum_{i=1}^n \frac{1}{i}$

$$\frac{1}{1} \times \frac{1}{2} \times \frac{1}{3} \times \dots \times \frac{1}{n}$$

 $a =$

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

$$ab = n$$

$$1 \times b = n$$

$$b = \frac{n}{1}$$

Fermat Little Theorem

$$\text{If } p \text{ is prime, } 1 \leq a < p \Rightarrow a^{p-1} \equiv 1 \pmod{p}$$

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.

$$(x-1)^p \Rightarrow x^p - 1$$

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

$$(x-1)^p = x^p - \binom{p}{1}x^{p-1} + \binom{p}{2}x^{p-2} - \dots + (-1)^{p-1}$$

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

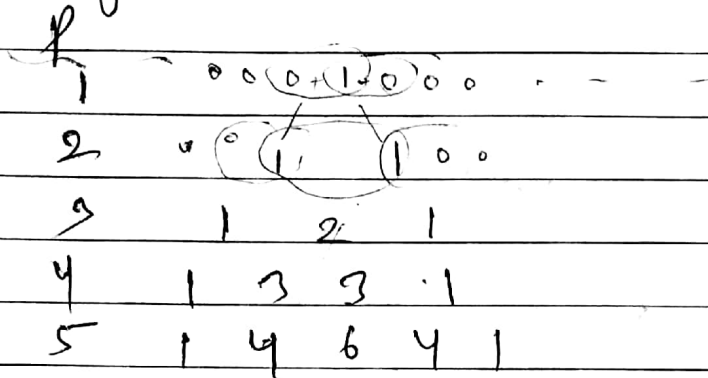
1 3 3 1 0

0 0 0

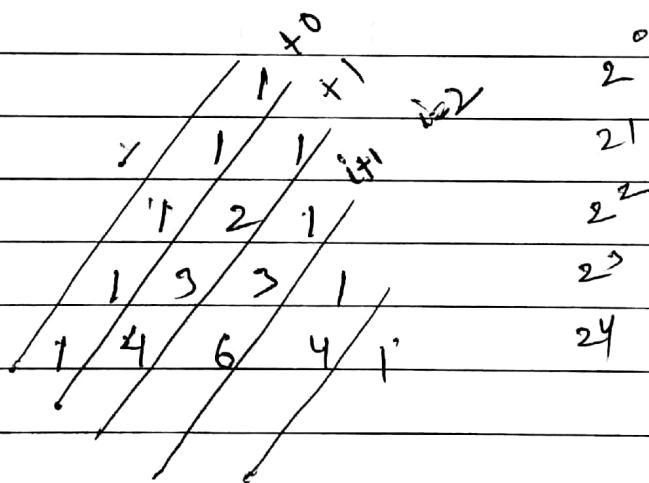
Pascal's triangle

1

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



this the coeff. of polynomial



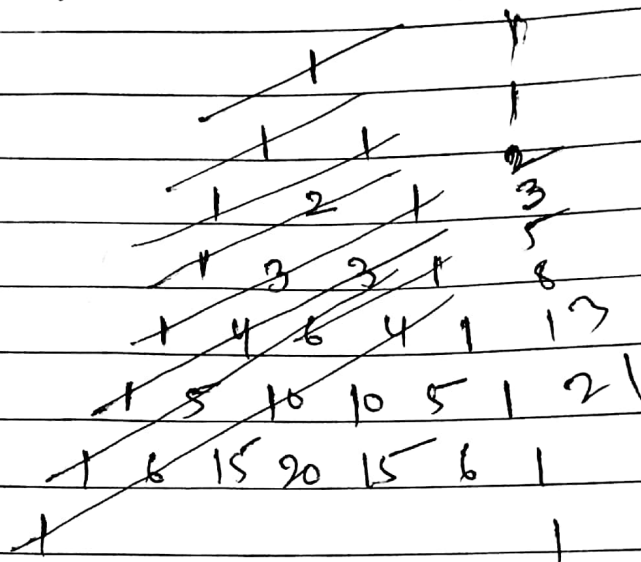
* Sum of pascal triangle rows are 2^n , $n=0,1,2,\dots$
 * Sum of pascal triangle rows is 11^n $\rightarrow n=0,1,2,3,\dots$
 limited

* Hockey Stick

Date .

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~~★~~ fibonacci sequence shallow diagonal method



continuously =

alternative =

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

only returns 0
if prime

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

$$\frac{(x+1)!}{x}$$

$n \neq x$

$$x \times 6! = \frac{720}{x}$$

~~Not proved yet~~

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

$= 0$

x will be composite

else x is prime

$$\textcircled{-1}$$

Alternatively

$$y \neq \textcircled{-1}$$

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

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

More Rectified: $(-1)^{\frac{4\Gamma(x)+4}{x}} - 1$, $x \neq \text{prime}$ the $\Gamma(x) = 0$
else same value