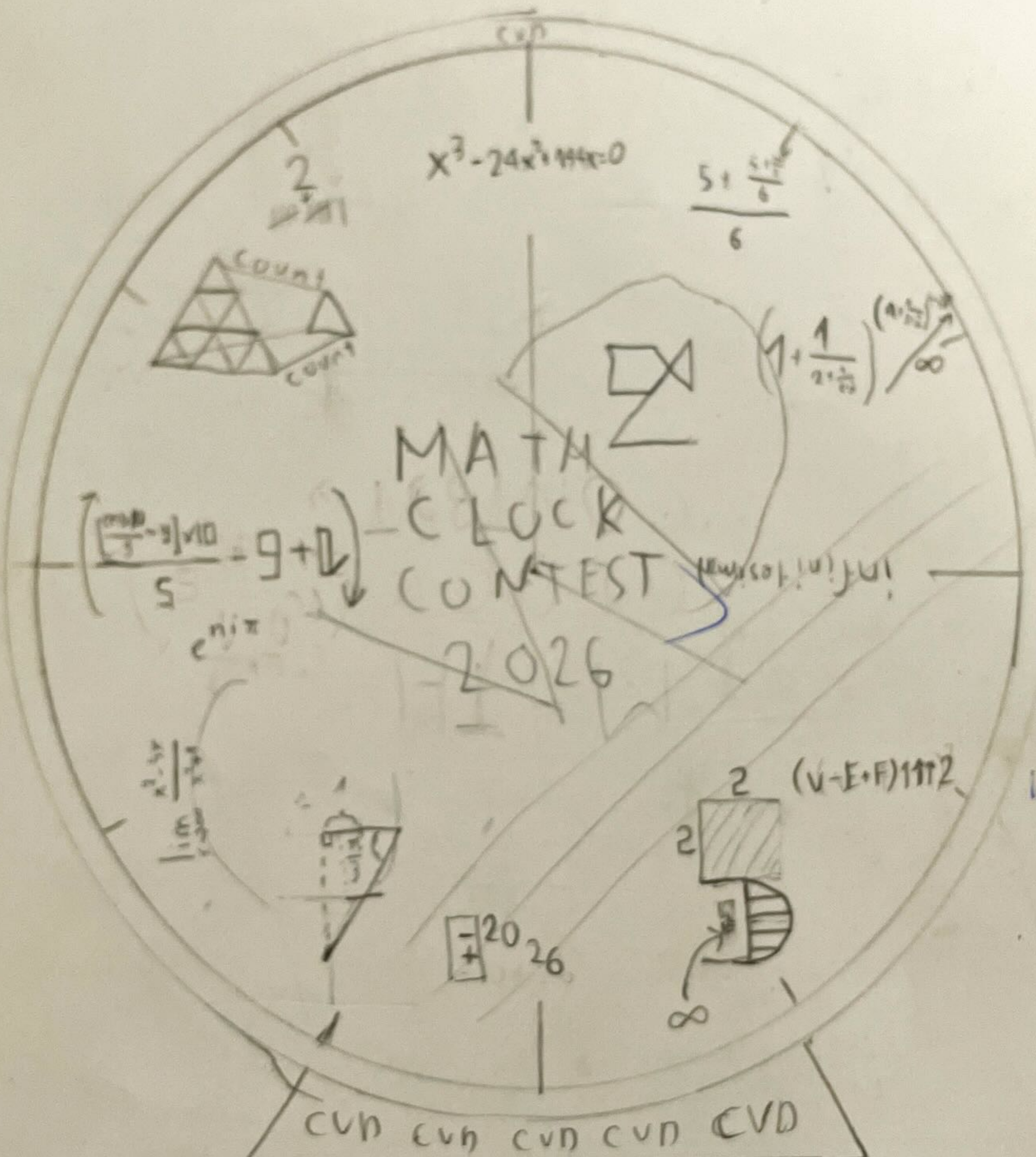

MATH
CLOCK
CONTEST
2026
count
count
infinitesimal
CVD CVD CVD CVD CVD

$\int (\ln x)^n dx$

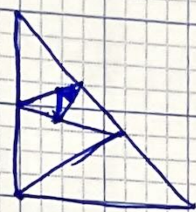
$x^{x^{x^8}} = 8$

$\left(x^{x^{x^8}}\right)^{\cancel{x}^8} = 8^{\cancel{x}^8}$

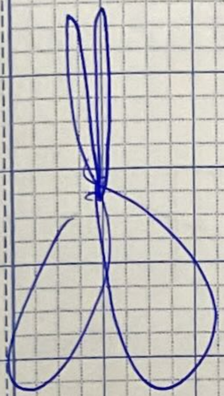
$\cancel{\left(x^{x^{x^8}}\right)^{8^8} = 8^{8^8}}$

$\cancel{\left(x^{x^{8}}\right)^{8^8} = 8^{8^8}}$

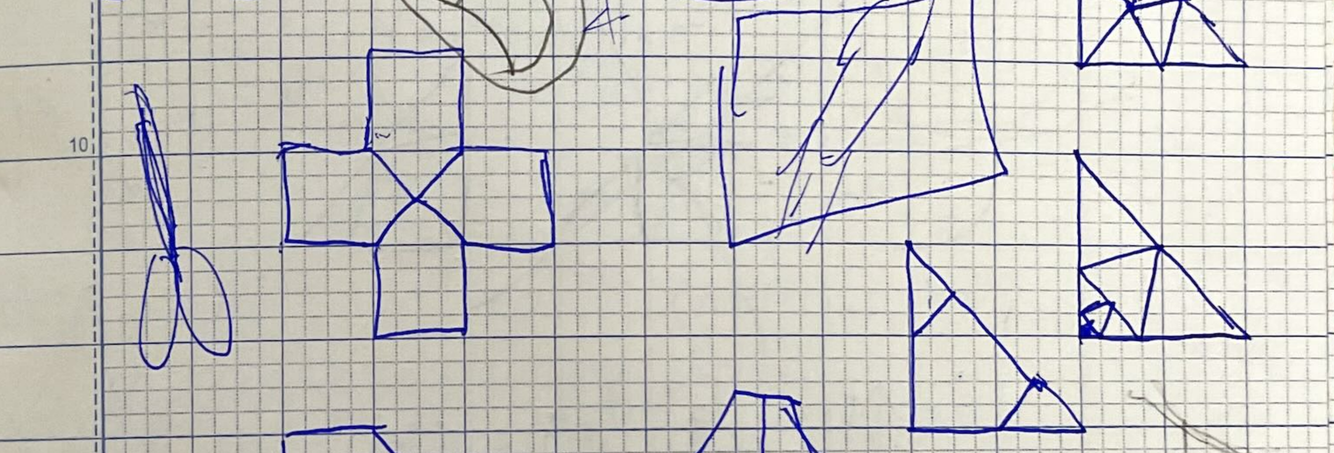
$\left(x^{x^8}\right)^{x^{x^8}} = 8^{x^8}$

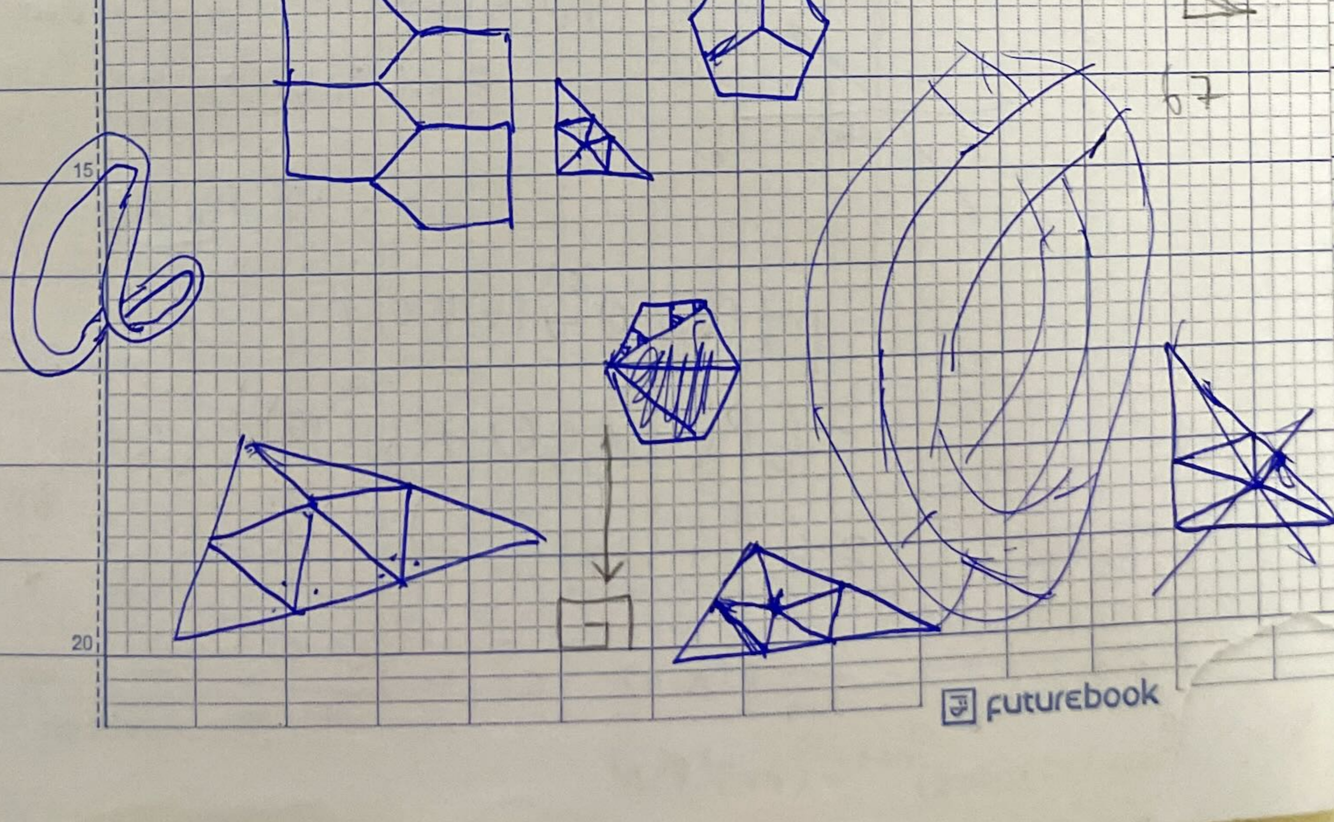


$\cancel{\left(x^{x^{x^8}}\right)^{x^{x^8}} = 8^8 \quad \left(x^{x^{x^8}}\right)^{x^{x^8}} = 8^8}$



5





67

$G(n) = n!\left(\frac{(\ln x)^n}{n!} - \frac{(\ln x)^{n-1}}{(n-1)!} + \dots\right)$

$G(n) = (\ln x)^n - n(\ln x)^{n-1} + n(n-1)(\ln x)^{n-2} \dots + (-1)^{n-1} n!$

$xG(n) = \int (\ln x)^n dx$

1;2 = PH

3;4 = AV

5;6 = LA

7;8 = KC

$F(n) = \int (\ln x)^n dx$

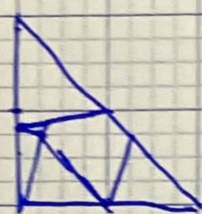
$u = (\ln x)^n$

$v = x$

$= x(\ln x)^n - n\int (\ln x)^{n-1} dx$

$G(n) = \frac{F(n)}{x}$

$\frac{1}{x^2} + C$



~~$F(x) = x(\ln x)^n - nF(x-1)$~~

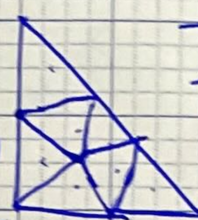
$F(n) = x(\ln x)^n - nF(n-1)$

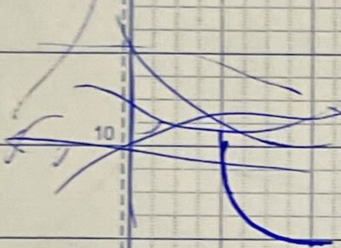
$F(1) = x\ln x - x$

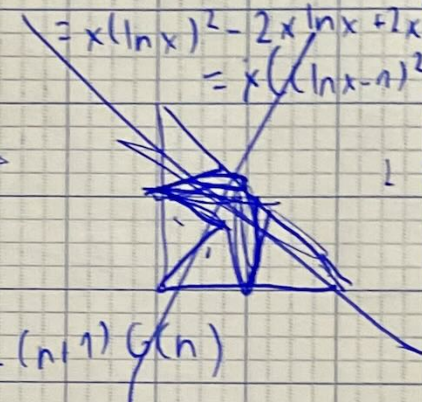
$F(2) = x(\ln x)^2 - 2\int x\ln x - x$

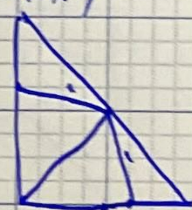
$= x(\ln x)^2 - 2x\ln x + 2x$

$= x((\ln x - 1)^2 + x)$





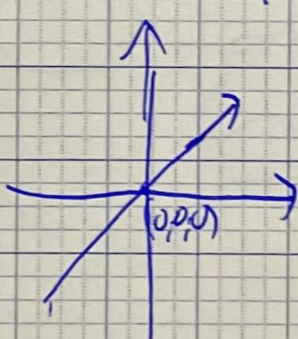




$G(n+1) = (\ln x)^{n+1} - (n+1)G(n)$

$\int (\ln x)^n dx$

$x\ln x - x + C$



$F(3) = x(\ln x)^3 - 3x(\ln x)^2 + 6x(\ln x) - 6x$

$= x((\ln x - 1)^3 + 3\ln x - 5) + C$

$\frac{(\ln x)^n}{x}$

$P((0;0;0) \xrightarrow{\geq 1} (0;0;0))$

$= 6P((1;0;0) \to (0;0;0))$

$= 6(\frac{1}{6} + \dots)$

$v = \frac{(\ln x)^{n+1}}{n+1}$

$u = x$

$F(n+1) = x$

$F(n) = \frac{x(\ln x)^{n+1}}{n+1} - \frac{1}{n+1}F(n+1)$

$F(n) = \frac{x(\ln x)^{n+1}}{n+1} - \frac{1}{n+1}\int (\ln x)^{n+1}$

$F(n+1) = x(\ln x)^{n+1} - (n+1)F(n)$

$$x^2 = A$$

$$(x-1)(x+1) = A-1$$

$$x = 1 + \frac{A-1}{1+x}$$

$$\sqrt{A} \approx 1 + \frac{A-1}{2+\frac{A-1}{2+\frac{A-1}{2+\frac{A-1}{1+x}}}}$$

$$x^2 = A$$

$$(x-B)(x+B) = A-B^2$$

$$\sqrt{A} \approx B + \frac{A-B^2}{2B+\frac{A-B^2}{2B+\frac{A-B^2}{x+B}}}$$

$$3 + \frac{7}{6+\frac{7}{6+\frac{7}{6+\frac{7}{x+3}}}}$$

$B = 3$ $\qquad$ $A = 16$

$$7 = 6 + \frac{7}{7}$$

$$= 6 + \frac{7}{6+\frac{7}{7}} = 6 + \frac{7}{6+\frac{7}{6+\frac{7}{7}}}$$

$$= 6 + \frac{7}{6+\frac{7}{6+\frac{7}{6+\frac{7}{6+7}}}}$$

futurebook

$$x^2 = 4489$$

$$x^2 - 2401 = 2088$$

$$(x-49)(x+49) = 2088$$

$$x - 49 = \frac{2088}{x+49}$$

$$x = 49 + \frac{2088}{\ldots}$$

$$3 - \frac{2}{1} = 2$$

$$3 - \frac{2}{2} = 1$$

$$67 = A + \cfrac{B}{A + \cfrac{B}{A + \cfrac{B}{49}}}$$

$$\left(67\frac{67}{99}\right)^2 = A\left(67\frac{67}{99}\right) + B$$

$$67 = A + \frac{B}{67}$$

$$67^2 = A \cdot 67 + B$$

56 737 $x \neq 11$

63 936 $x \neq 14$ $x \neq 11$

$\cancel{x = 67}$

$56 - 61 + 305$

$61^2 = \cancel{56 + 305 \cdot 61}$

$x \neq -5$ 4422

$\cancel{56}$

$420^2 = 397 \cdot 420 + 9660$

$x \neq -23$

$$3-\cfrac{2}{3-\cfrac{2}{3-\cfrac{2}{3-\frac{2}{3}}}}$$

$= 1+\sqrt{5}$

$= 1+\sqrt{5}$

$= 1+\sqrt{5}$

$56+\frac{737}{x}$ $x \neq -11$

$(5+i)(45-i)$

$53+\frac{938}{x}$ $x \neq -14$

$$56+\cfrac{737}{53+\cfrac{938}{x}}$$ $x \neq -14,79245$ $x \neq \frac{-784}{53}$

67

$$53+\cfrac{938}{56+\cfrac{737}{x}}$$ $x \neq \frac{-583}{56}$

∞

$$10^9 \times 7$$

$$+ \frac{B}{Ans} = X$$

$$X = A + \frac{B}{X}$$

$$\frac{247}{365} \simeq 67{,}67\%$$

$$X^2 = Ax + B$$

$6_{7_6}{}^7$

$$\cancel{A + B = X}$$

$$66 + 1^{67} = 67$$

$$\cancel{A + X^B =}$$

$$-4 + 2^X = X$$

X^{X^X}

$\cancel{5 + 2^X = X}$

666

6666

67

247 | 365

~~0,6767~~

0,6767

Slavery

$\sqrt{6+\sqrt{5}} = 1+\sqrt{5}$

$\sqrt{5+\sqrt{6+\sqrt{5}}} = 1+\sqrt{5}$

$\sqrt{5+\sqrt{5+\sqrt{5+\dots}}} = 1+\sqrt{5}$

$\frac{1}{1-\frac{d}{dx}}$

$2\varphi + e^{i\pi} = \sqrt{5}$

$2026 = (45+i)(45-i)$

2φ

$6^2 = 36$

$7^2 = 49$

$66 + \frac{666}{666}$

67

67

∞

$6 + \frac{7}{6+\frac{7}{6+\frac{7}{6+\dots}}} = 7$

一 二 三

futurebook

$$\frac{\frac{\frac{x}{2}+\frac{x}{2}}{2}+\frac{\frac{x}{2}+\frac{x}{2}}{2}}{2}=x$$

$$\frac{x+x}{2}=x$$

$$x=x$$

$$\underbrace{1\ 2\ 3\ 4\ \dots}$$

1

$1+1+\dots+1$

$n\infty$

$1+2+\dots+n$

$1+2+\dots+n$

$1+2+\dots+n$

$$\begin{matrix} & & & & 1 & & & & \\ & & & 1 & & 1 & & & \\ & & 1 & & 2 & & 1 & & \\ & 1 & & 3 & & 3 & & 1 & \\ 1 & & 4 & & 6 & & 4 & & 1 \end{matrix}$$

67

$(x-67)(x-2)$

$x^2-69x+420=286$

$$f_1(x)=\frac{x}{2}$$

$$f_n(x)=\frac{f_{n-1}(x)+f_{n-1}(x)}{2}=f_{n-1}(x)$$

∞^{∞}

$$f_n(x)\rightarrow\frac{\frac{\dots}{2}+\frac{\dots}{2}}{2}$$

$$f_n(x)=f_1(x)$$

$$\frac{x}{2}=\frac{\frac{\dots}{2}+\frac{\dots}{2}}{2}$$

$$\frac{n(n+1)(n+2)}{3!}$$

$$1+(1+2)+(1+2+3)+\dots+(1+2+3+\dots+n)$$

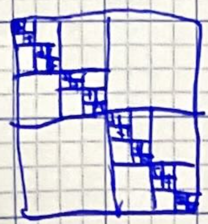
$$\frac{1\cdot 2}{2}+\frac{2\cdot 3}{2}+\frac{3\cdot 4}{2}+\dots+\frac{n(n+1)}{2}$$

+1

2

$f_1(x) = \frac{x}{2}$ $f_2(x) = \frac{x}{2}$

$$f_n(x) = \frac{f_{n-1}(x) + f_{n-2}(x)}{2}$$



$$x^2 = 2$$

$$x^2 - 1 = 1$$

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

$$x - 1 = \frac{1}{x+1}$$

$$x = 1 + \frac{1}{1+x}$$

$$x = 1 + \frac{1}{2 + \frac{1}{x}}$$

$$x = 1 + \frac{1}{2 + \frac{1}{2 + \frac{1}{2 + \dots}}}$$

$$\frac{\frac{\dots}{6} + \frac{7}{\dots}}{6} + \frac{7}{\frac{\dots}{6} + \frac{7}{\dots}}$$

$$\frac{x}{6} + \frac{7}{x} = x$$

$$x^2 + 42 = 6x^2$$

1 1 2 3 5 8

1

$$\frac{5\theta}{\frac{\pi}{2}}$$

$$\frac{-c\theta}{\frac{\pi}{2}}$$

$\theta \to \frac{\pi}{2}$

$$\frac{2}{\pi}$$

futurebook

$x+y \geq 1$

4

0

0 $\quad 1 \to 1$

$1 \to 0$

$\cancel{2 \to 3 \to 2 \to 3}$

$2 \to 2 \to 1 \to 0$

2 2 1

$3 \to 3 \to 3 \to 2 \to 1 \to 0$

2+1 3 3 2 1

$4 \to 26 \to 41 \to 60$

$2^2 \quad 2\cdot 3^2+2\cdot 3+2 \quad 2\cdot 4^2+2\cdot 4+1 \quad 2\cdot 5^2+2\cdot 5$

$$\frac{x}{x+1} + \frac{y}{y+1} \geq \frac{2}{2+1}$$

$$\frac{2xy+x+y}{xy+x+y+1} \geq \frac{2}{2+1}$$

$$\frac{1-xy}{xy+x+y+1} \leq \frac{1}{2+1}$$

$xy+x+y+1 \geq$

$$\frac{xy+x+y+1}{1-xy} \geq 2+1$$

67

$a_1 = \dots$

$a_2 = \dots$

$$a_n = 1 + \frac{a_{n-1}}{a_{n-2}}$$

$-1 \leq 2$

$$a_3 = 1 + \frac{a_1}{a_2}$$

$$a_4 = 1 + \frac{a_2}{1+\frac{a_1}{a_2}}$$

$$a_5 = 1 + \frac{1+\frac{a_1}{a_2}}{1+\frac{a_2}{1+\frac{a_1}{a_2}}}$$

$-2 \leq 1$

$$\frac{1}{-2} \leq$$

futurebook

$xyz + 2xy + x + y + 1 = 2$

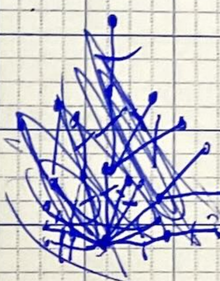
$A - \frac{B}{67} = 69$

$A + \frac{B}{69} = 67$

$67A - B = 67 \cdot 69$

$69A - B = 67 \cdot 69$

$A = 0 \quad B = -67 \cdot 69$

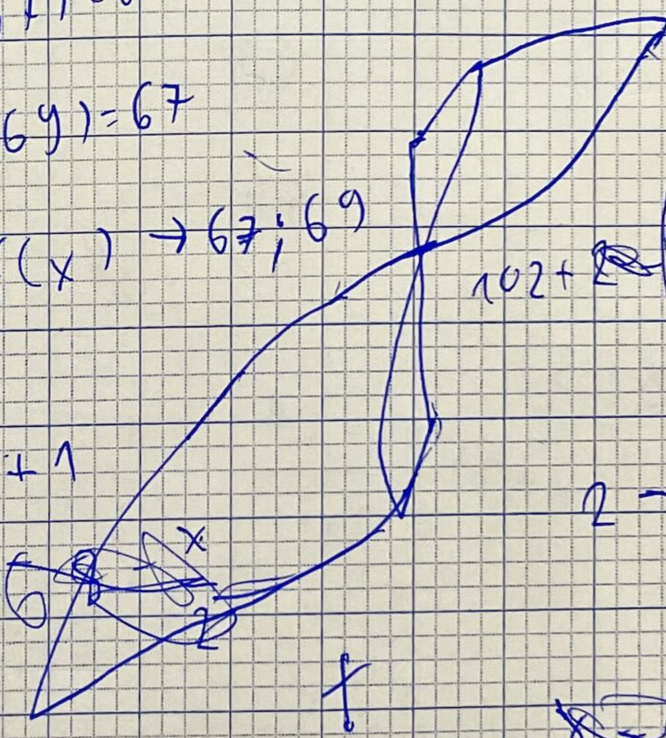


$f(67) = 69$

$f(69) = 67$

$f(x) \to 67; 69$

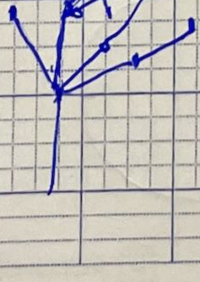
$102 + 2\left(\frac{x-1}{2} + 1\right)$



$x \to \frac{(x-1)}{2} + 1$

$2 - X$

$X = 1$



-67

69

$1 - 2(x-1)$

$1 - x \quad \frac{2}{68} \quad x$

$a; -a$

$$\frac{\sqrt{x^2 \cdot y^2}}{\sqrt{x^2+x^2}+1}$$

$f(a) = -a$

$f(-a) = a$

$f(x) \to a; -a$

$$-\frac{x}{|x|} - \frac{x}{2}$$

$\cancel{x \cdot x \cdot (x \cdot (x \cdot x + x) + x \cdot (x \cdot (x+x+x+x+x)}$

68

34

$\cancel{x^6}$

$\cancel{(x+1)}$

$$(x+1)\left(\frac{-34}{|x+1|} - \frac{1}{2}\right) - 1$$

$x^3 + x^2 + x^4 + 2x^3 + 2x^2$

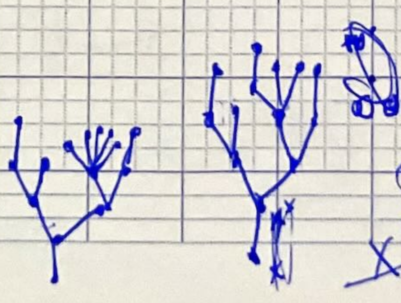
$x^3 + 2x^2 + 2x$

$x^2 + 2x$

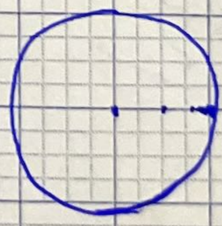
$x^3 + x^2$

$\cancel{x \cdot x \cdot (x \cdot (x \cdot x + x) + x \cdot (x \cdot (x \cdot x + x + x) + x \cdot x) = x^3 + 3x^3 + 3x^4}$

n



$x^{x^{x^x}} + x^x + x^x$



67 69 420

$\sqrt{2}$

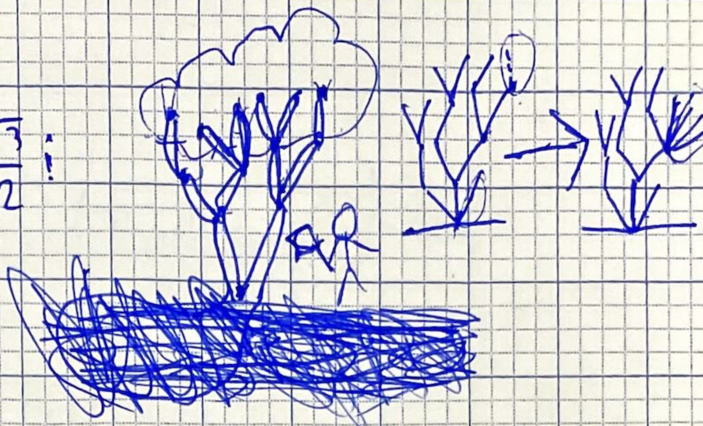
$$\frac{x}{x+1} = y$$

$$x = yx + 1$$

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

$$x = \frac{1}{1-y}$$

$$-\frac{1}{2} + \frac{\sqrt{3}}{2} i$$



61 ; 67 ; 69 ; 420

i

$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$

$65 + 243{,}5\, i$

$61 + 67 i$

$-69 - 420 i$

-8

$-8 - 353 i$ $\quad -4 - 176{,}5\, i$

$\cancel{-4 - \frac{353}{2} i}$

(0;1) (1+√2; 1+√2)

(0;0) (1;0)

$\cancel{f(n) = c_1 + c_2 n^x}$

$\cancel{a - nf(n-1) = a - nc_1}$

$61 \to 67 \to 69 \to 420$

$$f(n) = a - nf(n-1)$$
$$f(0) = b$$

$$f(n) = c_1 x^n + c_2 y^n$$
$$a - nf(n-1) = a - nc_1 x^{n-1} - nc_2 y^{n-1}$$

$$\frac{67}{|x-61|+1}$$

$$f_n(x) = x(\ln x)^n - nf_{n-1}(x)$$

$$\frac{67}{|x-61|+1}$$

$$\cancel{\frac{61|x-67|}{1+|x-420|} + \frac{67|x-69|}{1+|x-61|} + \frac{69|x-420|}{1+|x-67|} + \frac{420|x-61|}{1+|x-69|}}$$

$$f(n) = 3 + f(n-1) \;;\; f(0) = C$$

$$\Rightarrow f(n) = \boxed{3n + C}$$

$$= \sum_{k=1}^{n} 3 + C$$

$\int (\ln x)^n \, dx$

$f(1) = \cancel{\quad} \, c_1$

$f(n) = 1 + n f(n-1)$

$61 \quad 67 \quad 69 \quad 420$

$f(n) = k + g(n)$

$g(n) = n g(n-1)$

$f(n-1) = k + n g(n-1)$

$x (\ln x)^n - n \int (\ln x)^{n-1} dx$

$\int (\ln x)^n dx = x(\ln x)^n - n \int (\ln x)^{n-1} dx$

$f_n(x) = x(\ln x)^n - n f_{n-1}(x)$

$f_0(x) = x + C$

$\left(\frac{x-67}{2} + 69\right)$

$f(n) = n f(n-1)$

$\int \frac{(\ln x)^n}{x} dx = \frac{(\ln x)^{n+1}}{n+1} + C$

$64 \leq x \leq 68$

$f(n) = cn!$

$f(n) = \prod_{k=1}^{n} k \cdot c$

$\ln f(n) = \ln n + \ln f(n-1)$

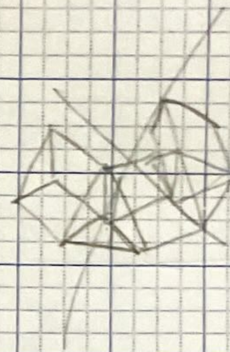
$$\left(\frac{x-67}{2} + 69\right)\left(\frac{64 - x + |64 - x|}{10^{-99} + |64 - x + (|64 - x|)|}\right)\left(\frac{x - 68 + |x - 68|}{10^{-99} + |x - 68 + (|x - 68|)|}\right)$$

futurebook

$$\cancel{\left(\frac{x-67}{2}+69\right)\left(\frac{64-x+|64-x|}{10^{-99}+|64-x+|64-x||}\right)\left(\frac{x-68+|x-68|}{10^{-99}+|64-x+|64-x||}\right)}$$

$$\cancel{+\left(\frac{x-69}{2}+420\right)(}$$

$$\begin{tikzcd} & 61 \arrow[dl] & \\ 67 \arrow[dr] & & 420 \arrow[ul] \\ & 69 \arrow[ur] & \end{tikzcd}$$

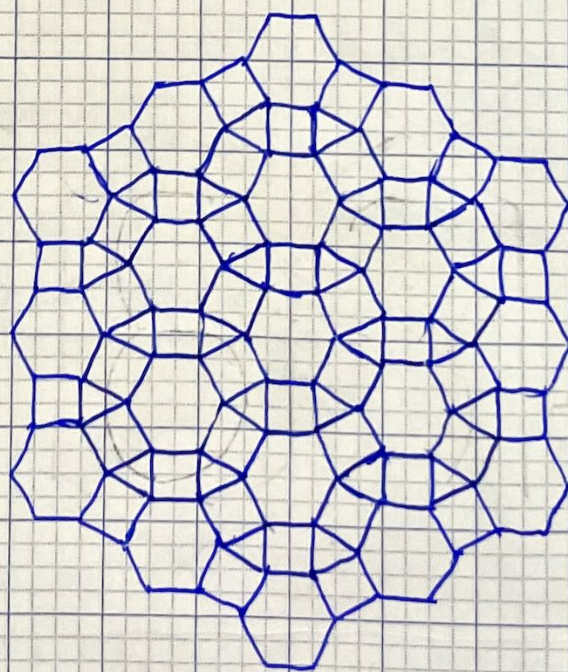


$$\left(\frac{x-61}{2}+67\right)\left(\frac{64-x+|64-x|}{10^{-99}+|64-x+|64-x||}\right)$$

$$+\left(\frac{x-67}{2}+69\right)\left(1-\frac{64-x+|64-x|}{10^{-99}+|64-x+|64-x||}\right)\left(\frac{68-x+|68-x|}{10^{-99}+|68-x+|68-x||}\right)$$

$$+\left(\frac{x-69}{2}+420\right)\left(1-\frac{68-x+|68-x|}{10^{-99}+|68-x+|68-x||}\right)\left(\frac{244.5-x+|244.5-x|}{10^{-99}+|244.5-x+|244.5-x||}\right)$$

$$+\left(\frac{x-420}{2}+61\right)\left(1-\frac{244.5-x+|244.5-x|}{10^{-99}+|244.5-x+|244.5-x||}\right)$$



$x = x + 1$

$x += 1$

$\int (x \ln x)^2 \, dx$

T

81 7 9

189 6 67 69

~~168n~~

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HHH → THH

THH → TTH

HTH → THT

TTH → TTT

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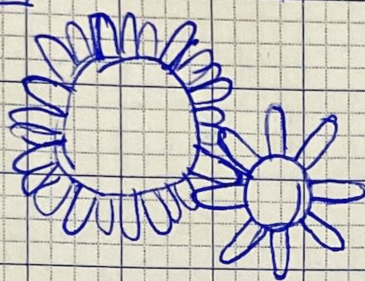

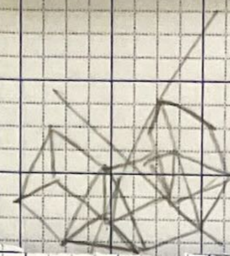

TTH

HTT

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THH THT

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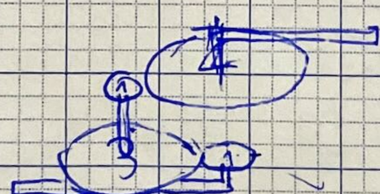
HTTTTTTTH



$12 = 3 \cdot 4$

$60 = 3 \cdot 2 \cdot 2 \cdot 5$

HTT

$x-3=(x-59)^2$

$x^2-118x+3481$

$x^2=119x+3484$

	7	9
6	67	69
11	711	911

~~168n+~~

~~168n+28√e980~~

H He

Li Be B C N O F Ne

$\sqrt{x-3}+59$

$\cancel{\sqrt{x-118}}$

	7	9
6	SIX SEVEN	67
11	7 ELEVEN	911

HHH → THH 87,5%

HHT → THH 75%

HTH → HHT 66,66%

HTT → HHT 66,66%

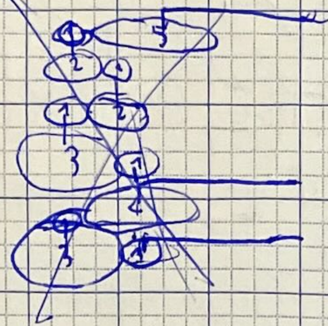
THH → TTH 66,66%

THT → TTH 66,66%

TTH → HTT 75%

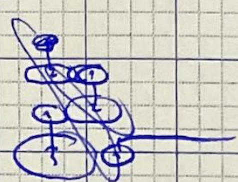
TTT → HTT 87,5%

HTH



50%

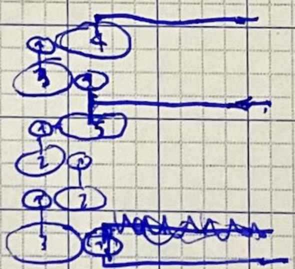
~~50% · 50%~~



$x^4 + Ax + B = 0$

$\cancel{x^4 + Ax^2 + Bx + C = 0}$

$\cancel{x^4 + Ax + B = 0}$



$\underbrace{(x+y)}_{2}{}^4 = x^4 + y^4 + \cancel{2x(x^2y+}$

$+ 2xy(2x^2 + 3xy + 2y^2)$

1 1

1 1

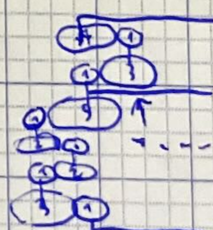
0 0

0 0

1 0 1

1 1 0

0 1 1



$((x+y)^2 + z)^2$

HTT

HHT $\frac{2}{3}$ $= \cancel{P(HH) + P(HTH)P(\ldots HHT) + P(T)P(\ldots HHT)}$

THT

$P(TH\ldots THT)$
$= P(T) + P(H)P(H\ldots THT)$

$P(\ldots THT) = P(T)P(T\ldots THT)$
$+ P(H)P(H\ldots THT)$

$P(T\ldots THT)$
$= P(HT) + P(HH)P(H\ldots THT)$
$+ P(T)P(T\ldots THT)$

$P(H\ldots THT)$
$= P(T)P(H)P(TH\ldots THT)$
$+ P(H)P(H\ldots THT)$

H TH
HHT

$X^3 + AX + B = 0$

TTT $(X+Y)^3 = X^3 + Y^3 + 3XY(X+Y)$

HTT

$A = 3Y(X+Y)$

$B = Y^3$

HHHHT HTH

H HHHHHHTHH $3\sqrt[3]{B}(X + \sqrt[3]{B}) = A$

TT

$\frac{1}{2}X = \frac{1}{4} + \frac{1}{2}Y + \frac{1}{2}Z$

$\frac{2}{3}Y = \frac{1}{4} + \frac{1}{4}Z \cdot \frac{2}{3}$
$+ \frac{1}{2}Y$

$X = \frac{A}{\sqrt[3]{B}}$

HH 25%

HT

T 50%

$P(HHT) = 100\%$

$\frac{1}{3}Z = \frac{1}{4}T + \frac{1}{2}T$

$Z^3 = X^3 + 3XY^2 + Y^3$

$T = \frac{1}{2} + \frac{1}{2}Z$

$X = \frac{1}{4} + \frac{1}{8}Y + \frac{1}{2}X$

$P(HHT)$
$= \cancel{P(HH) + P(HT)P(HHT) + P(T)P(HHT)}$
$\cancel{= 25\% + 75\% P(HHT)}$

$0 = X^3 + 3XYZ + (Y^3 - Z^3)$

$Y = \frac{1}{4} + \frac{1}{4} + \frac{1}{2}Z$

$Z = \frac{1}{8} + \frac{7}{8}Z$

$Z = \frac{1}{2}Y$

$A = 3YZ$

$B = Y^3 - Z^3$

$\frac{3}{8}P(\ldots HHT) = \frac{25}{4}$

$\cancel{Z^4 = X^4 + Y^4 + 2XY(}$

$\frac{1}{2}X = \frac{1}{4} + \frac{1}{8}Y$

$Z^4 = X^4 + Y^4 + 2XY(2Z^2 - XY)$

$\frac{3}{4}Y = \frac{1}{2}$

$X^4 + X^2(-2Y) + X(4YZ^2) + (Y^4 - Z^4) = 0$

$Y = \frac{2}{3}$ $X = \frac{2}{3}$

$P(\ldots HHT)$

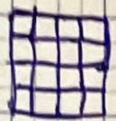
$P(\ldots HHT)X$
$= P(HH) + P(HT)P(H)$
$P(H\ldots HHT)$
$+ P(T)P(\ldots HHT)$

$P(H\ldots HHT)Y$
$= P(HH) + P(HT)$
$+ P(T)P(HT\ldots HHT)$

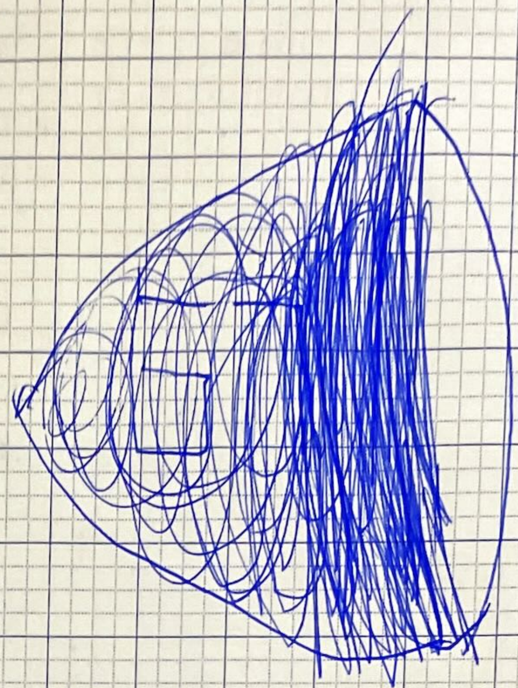
$P(HT\ldots HHT)Z$
$= P(H)P(H\ldots HHT)$

$= P(HH) + P(HT)P(T)P(\ldots HHT) + P(T)P(\ldots HHT)$

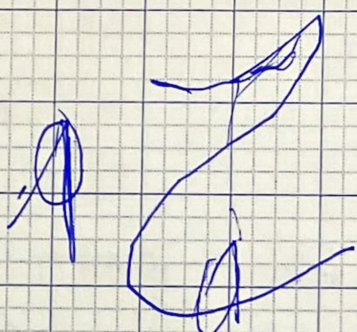
$= 25\% + \frac{5}{8}P(\ldots HHT) =$



1	1	0	1	0	1	0	0
0	1	0	0	1	0	1	1
1	1	0	1	1	0	0	0
1	0	1	0	0	1	1	0
1	1	0	0	1	1	0	0
0	0	1	1	0	0	1	1
0	1	0	1	0	1	1	0
1	1	0	0	1	0	0	1
0	1	0	1	0	1	0	1
0	1	0	1	0	1	1	0
1	0	1	0	1	0	1	0
0	0	0	1	0	1	0	0
0	1	1	0	0	0	1	1
1	0	1	0	0	0	1	1
0	0	0	1	1	1	1	0
1	1	1	0	0	0	1	0



HTT
HHT



THH

TTH

HTHT TTH

50

~~20 | 20~~
~~8 | 11~~
~~6 | 5~~
~~5~~

50	49
25	25
10	15
6	9
9	0

$x + x^2 + x^3 + x^4 + x^5 + x^6 + x^7 + x^8 + x^9 + x^{10} + x^{11} + \dots$

$- \quad x + x^3 + x^5 + x^7 + x^9 + x^{11} + \dots$

$- \quad x^6 \quad + x^{10} \quad + \dots$

$x^2 + \dots$

$x^5 + \dots$

$x + x^2 + x^3 + \dots$

$- \sum x^{2n+1}$

$- \sum x^{4n+2}$

$- \sum x^{8n+4}$

$- \dots$

$$f(x) \stackrel{?}{=} \frac{x}{1-x} - \frac{x^3}{1-x^2} - \frac{x^6}{1-x^4} - \frac{x^{12}}{1-x^8} - \dots$$

$+ x^2 + x^3 + \dots$

$x^5 + x^3 + \dots$

$x^{16} + x^{14} + \dots$

$x^{20} + x^{28} + \dots$

+ + + + + + + + + + +

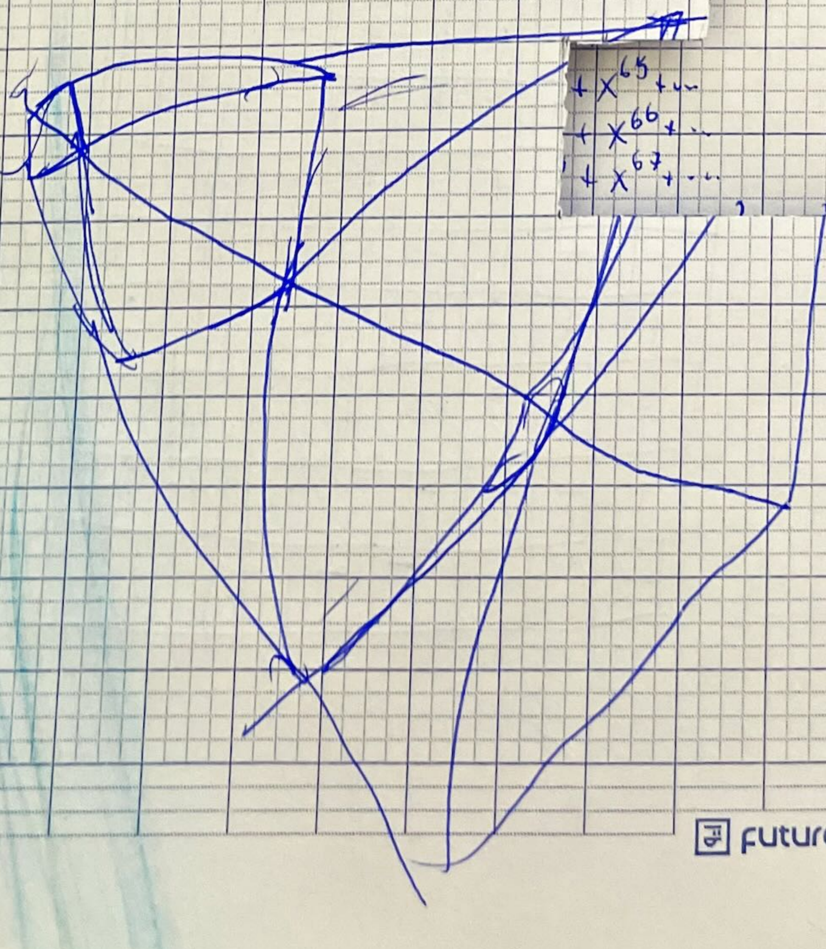
+ − − + − − + − + + − + + − +

− + + − + − − + − + −

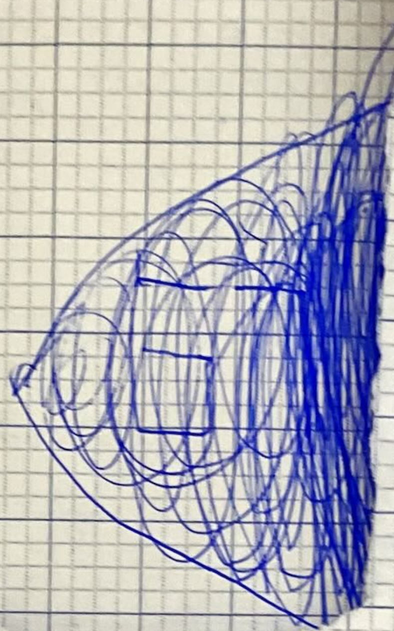
$+ x^{65} + \dots$

$+ x^{66} + \dots$

$+ x^{67} + \dots$



1	1	0	1	0	1	0	0
0	1	0	0	1	0	1	1
1	1	0	1	1	0	0	0
1	0	1	0	0	1	1	0
1	1	0	0	1	1	0	0
0	0	1	1	0	0	1	1
0	1	0	1	0	1	1	0
1	1	0	0	1	0	0	1
0	1	0	1	0	1	0	1
0	1	0	1	0	1	1	0
1	0	1	0	1	0	1	0
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1	0	0



0	0
1	1

+		+	+	+	−	+	+
	−	−	+	+	−	+	+
	−	+	−	+	−	+	−
−	−	+	−	+	+	+	−
+	+	−	−	+	+	−	−
−	+	+	−	+	−	−	+
+	−	+	−	+	+	−	−
−	+	+	−	−	+	−	+

$1 + x + x^2 + x^3 + x^4 + x^5 + x^6 + x^7 + x^8 + x^9 + x^{10} + x^{11} + \dots$

$- \quad x + x^3 + x^5 + x^7 + x^9 + x^{11} + \dots$

$- \quad x^6 + x^{10} + \dots$

$\cancel{1 + x + x^2 + \dots}$

$\cancel{x + x^3 + x^5 + \dots}$

$1 + x + x^2 + x^3 + \dots$

$x^3 + x^5 + x^7 + \dots$

$x^6 + x^{10} + x^{14} + \dots$

$x^{12} + x^{20} + x^{28} + \dots$

$x + x^2 + x^3 + \dots$

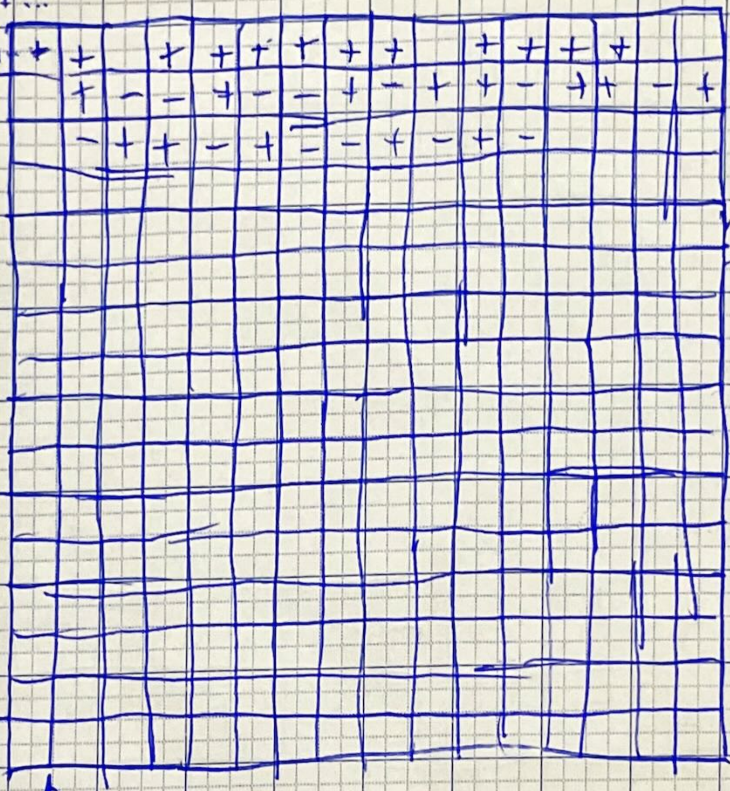
$- \sum x^{2n+1}$

$- \sum x^{4n+2}$

$- \sum x^{8n+4}$

$- \dots$

$$S(x) \stackrel{?}{=} \frac{x}{1-x} - \frac{x^3}{1-x^2} - \frac{x^6}{1-x^4} - \frac{x^{12}}{1-x^8} \dots$$



$$S(x) = x + x^2 + x^4 + x^8 + x^{16} + x^{32} + x^{64} + \dots$$

$$x S(x) = x^2 + x^3 + x^5 + x^9 + x^{17} + x^{33} + x^{65} + \dots$$

$$x^2 S(x) = x^3 + x^4 + x^6 + x^{10} + x^{18} + x^{34} + x^{66} + \dots$$

$$x^3 S(x) = x^4 + x^5 + x^7 + x^{11} + x^{19} + x^{35} + x^{67} + \dots$$

$$(1 + x^2 - x^4) S(x) \stackrel{?}{=} x + x^4 + x^5 + x^6 - x^7 + \dots = c_1 x + c_2 x^2 + c_3 x^3 + \dots$$

$$\boxed{0 \leq x < 1}$$

$$f(x) = \begin{cases} 1 ; x = 2^n \\ 0 ; x \neq 2^n \end{cases}$$

$$\cancel{\sum^{2^n} (-1) f(i) = f(2^n)}$$

$$\cancel{1 + x + x^2 + x^3 + x^4 + x^5 + \dots = \frac{x}{1-x}}$$

$$\cancel{- \quad + x^3 + x^6 + x^9 + x^{12} + \dots = \frac{x^3}{1-x^3}}$$

$$\cancel{+ \quad + x^5 + x^{10} + x^{15} + \dots = \frac{x^5}{1-x^5}}$$

$$S(x) \stackrel{?}{=} \frac{x}{1-x} - \frac{x^3}{1-x^3} - \frac{x^5}{1-x^5} - \frac{x^7}{1-x^7} - \frac{x^{11}}{1-x^{11}} - \frac{x^{13}}{1-x^{13}}$$

+	−	+	−	−	+	−	+	+	−
−	+	−	−	−	−	−	−	−	+
+	−	+	+	+	+	−	+	+	−
−	−	−	+	−	+	+	−	+	−
+	−	−	−	+	+	−	+	+	+
+	−	−	+	−	+	−	−	+	−
−	+	−	+	−	−	+	−	+	−
−	+	−	+	−	−	−	+	+	−
+	+	−	−	+	−	−	−	+	−
+	−	−	+	−	+	−	−	+	−

$\boxed{0 \le x < 1}$

	1	2	3	4	5	6	7 …
−	3	6	12	24	…		
−	5	10	20	40	…		
−	7	14	28	56	…		

$$\left((x^x)^{x^x}\right)^{(x^x)^{x^x}}$$

$$S(x) \overset{?}{=} \frac{x}{1-x} - S(x^3) - S(x^5) - S(x^7$$

$$\left(x^{x^{x+1}}\right)^{x^{x^{x+1}}}$$

$$S(x) + S(x^3) + S(x^5) + S(x^7) + \dots \overset{?}{=}$$

$$x^{x^{(x^{x+1})(x+1)}}$$

$$S(x) - S(x^2) \overset{?}{=} x$$

$$x^{x^{x^{x+2}} + x^{x+1}}$$

$$\equiv\sqrt{\frac{\infty-1}{2}}$$

1	4	9	16
2	3	8	15
5	6	7	14
10	11	12	13

$\sqrt{\infty}$

0, ...

$\approx \frac{\infty-1}{2}$

1	4	9	16
1	2	5	10

6

∞

0,1 0,2 0,125

1	4	9	16
0	1	4	9

$\cancel{\frac{\infty}{2}}$

$\infty\left(10^{\frac{\infty-1}{2}} - \frac{\infty-1}{2}\right)$

$10\infty \approx \infty$

$\approx \infty\left(10^{\frac{\infty-1}{2}}\right)$

$\approx$

1	2	3	4
2	4	6	8

2^{∞}

$x^2+1=\frac{2}{x^2}+2$ $\quad x^4-x^2-2=0$ $\quad x=\sqrt{2}$

$2^{\infty}>\infty$

$x=\sqrt{5}$

$x^2-\frac{5}{x^2}=4$

$\frac{1}{0}=\tilde{\infty}$

$x^4-4x^2-5=0$

$x^2+1=\frac{5}{x^2}+5$

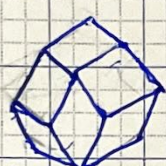
$(x^2-2)^2=9$

$\sqrt{x^2+1}$

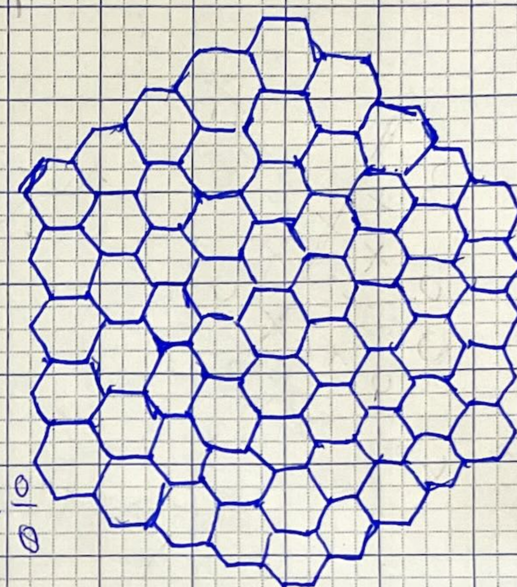
$\sqrt{\frac{1}{x^2}+1}$

$x\tilde{\infty}=\frac{1}{\frac{0}{x}}=\frac{1}{0}=\tilde{\infty}$

$x\neq 0;\ x\neq\tilde{\infty}$



rhombic dodecahedron



$\tilde{\infty}^2=\frac{1}{0}\frac{1}{0}$

$0\tilde{\infty}=\frac{1}{0}\frac{0}{1}=\frac{0}{0}$

$\tilde{\infty}+x=\frac{1}{0}+\frac{x}{1}=$

$\frac{A}{B}+\frac{C}{D}=\frac{AD+BC}{BD}$

$\frac{A}{B}\frac{C}{D}=\frac{AC}{BD}$ $\quad 0x=0\ (x\neq\tilde{\infty})$

$\frac{A}{B}x=\frac{Ax}{B}=\frac{A}{Bx}\ (x\neq 0,\ x\neq\tilde{\infty})$

$\frac{1}{0}=\tilde{\infty}$ $\quad x=\frac{x}{1}\ (x\neq\tilde{\infty})$

$x^2 = n$

$x^2 - (n-1) = 1 \quad x^2 - 1 = n - 1$

$(x - \sqrt{n-1})(x + \sqrt{n-1}) = 1$

$(x-1)(x+1) = n-1$

$x = 1 + \frac{n-1}{1+x}$

$x = \sqrt{n-1} + \frac{1}{\sqrt{n-1}+x}$

$\sqrt{2} = 1 + \frac{1}{2+\frac{1}{\dots}}$

$\tilde{\infty} + x = \frac{1}{0} + \frac{x}{1} = \frac{1+0x}{0} = \frac{1}{0} = \tilde{\infty} \quad (x \neq \tilde{\infty})$

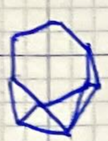
$\cancel{0x = \frac{0}{1}\frac{x}{1}}$

$\tilde{\infty} x = \frac{1}{0}\frac{x}{1} = \left(\frac{1}{0}\frac{1}{x}\right)\frac{x}{1} = \frac{1}{0} = \tilde{\infty} \quad (x \neq \tilde{\infty}, x \neq 0)$

$\tilde{\infty}^2 = \frac{1}{0}\frac{1}{0} = \frac{1}{0} = \tilde{\infty}$

$\sqrt{3} = 1 + \frac{1}{2+\frac{1}{2+\dots}} + \frac{1}{1+\sqrt{3}+\frac{1}{2+\dots}}$

$\tilde{\infty} \pm \tilde{\infty} = \frac{1}{0} \pm \frac{1}{0} = \frac{0}{0}$



$x^2 = \tilde{\infty}$

$\sqrt{67} = 8 + \frac{1}{\frac{8+\sqrt{67}}{3}}$

$x^2 = \frac{1}{0} \quad x \neq 0 \quad \cancel{0}$

$x = \tilde{\infty}$ ✓

$x \neq \tilde{\infty} \quad 1 \quad x^2 \frac{1}{x} = \frac{1}{0}\frac{1}{x}$

$\frac{1}{\sqrt{67}-8}$

$\frac{\sqrt{67}+8}{3}$

$x = \frac{1}{0}$

$\sqrt{\tilde{\infty}} = \tilde{\infty}$

$\sqrt{67} = 8 + \frac{1}{5+\frac{1}{\frac{\sqrt{67}+7}{6}}}$

$\frac{8+\sqrt{67}}{3} - 5$

$\frac{1}{\frac{\sqrt{67}-7}{3}}$

$\cancel{A}B \quad 140° = \frac{360°}{n}$

$1 + \infty + \frac{\infty^2}{2} + \frac{\infty^3}{6} + \dots$

90° 90°

$\frac{3}{\sqrt{67}-7}$

$\frac{\sqrt{67}+7}{6}$

$\frac{1\sqrt{67}+21}{18}$

67
49
18

60° 60° 60°

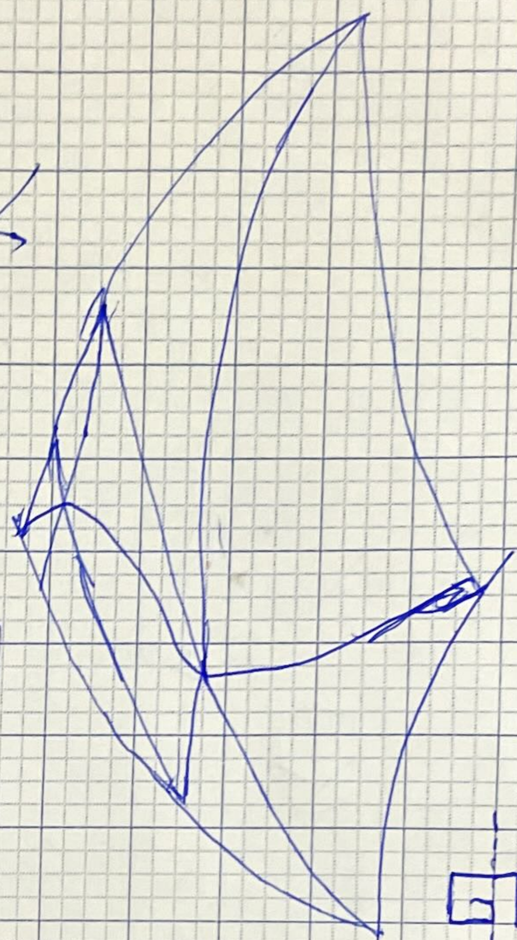
$\int (x \ln x)^n \, dx$

wr67

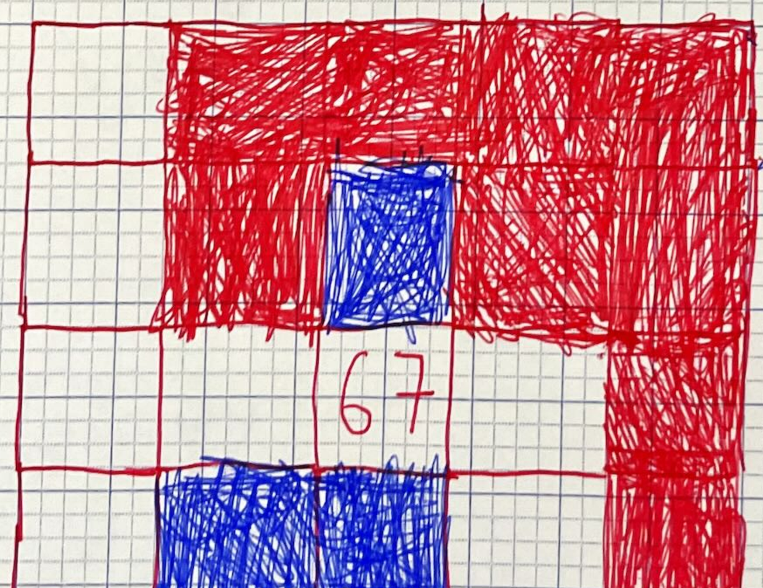
2^{∞}

67

67

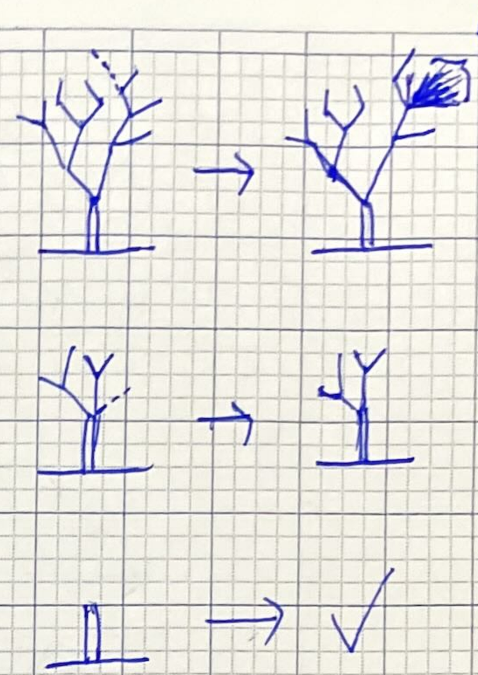


X	O	X
	O	X
O		X



67

67



Bài toán

Có 1 cái cây có rất nhiều cành. Một người muốn chặt cái cây đó. Quy tắc:

~~Mỗi cành cây có thể mọc thêm các~~

- Chỉ được phép chặt những cành cây không có các cành khác trên nó
- Khi chặt 1 cành cây, 67 cành cây khác sẽ được mọc lên từ đầu dưới của cành cây dưới cành cây được chặt
- Nếu cành cây được mọc ra từ thân cây, không có cành cây nào sẽ được mọc thêm khi bị chặt

Chứng minh rằng: người này sẽ chặt được hết cây sau hữu hạn lần chặt (không tính thân cây).