



Фиксация санитарных выходов:

1 выход:		возвращение:	
2 выход:		возвращение:	
3 выход:		возвращение:	
4 выход:		возвращение:	
5 выход:		возвращение:	

Время окончания:

Всего листов:

$a_1 a_2 a_3 a_4 a_5$

$$4 \cdot 4^n - 4^n$$

$$3 \cdot 4^n$$

$$a \leq b$$

$$c \leq d$$

$$(n+1)! - n!$$

$$(n+1)n! - n!$$

$$n \cdot n!$$

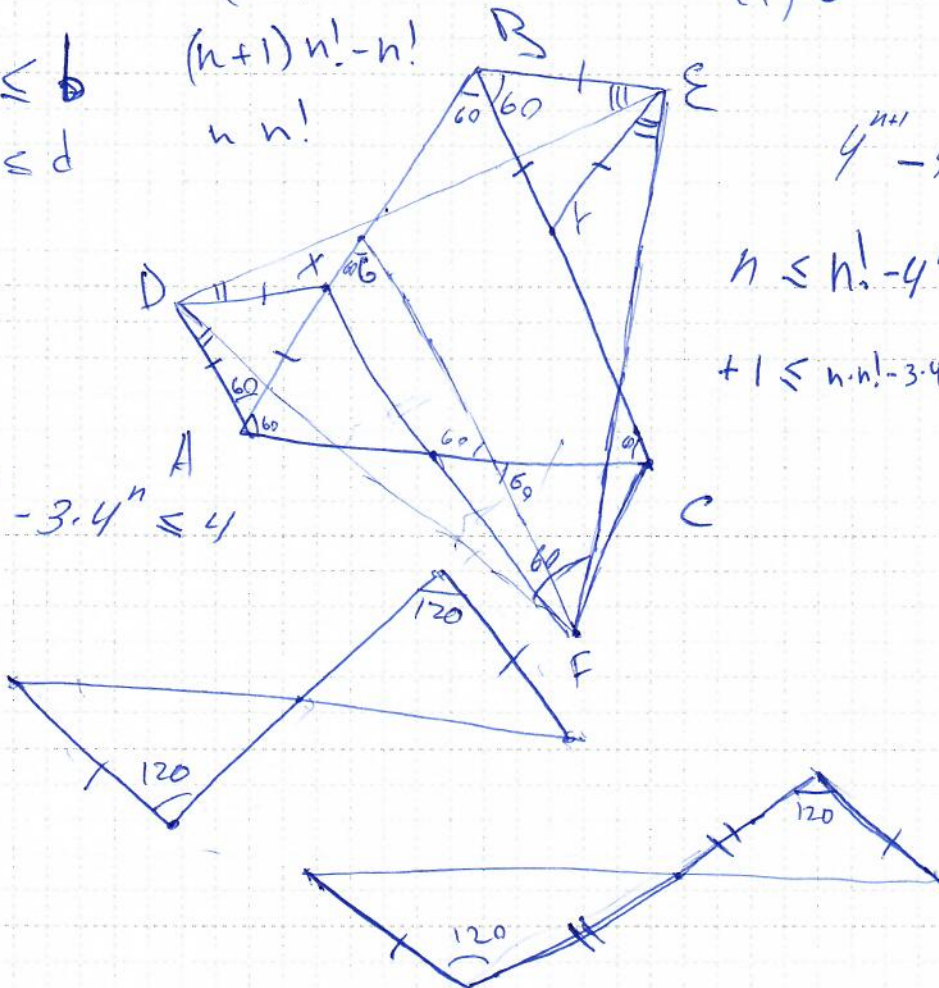
$$(!) GF=AB$$

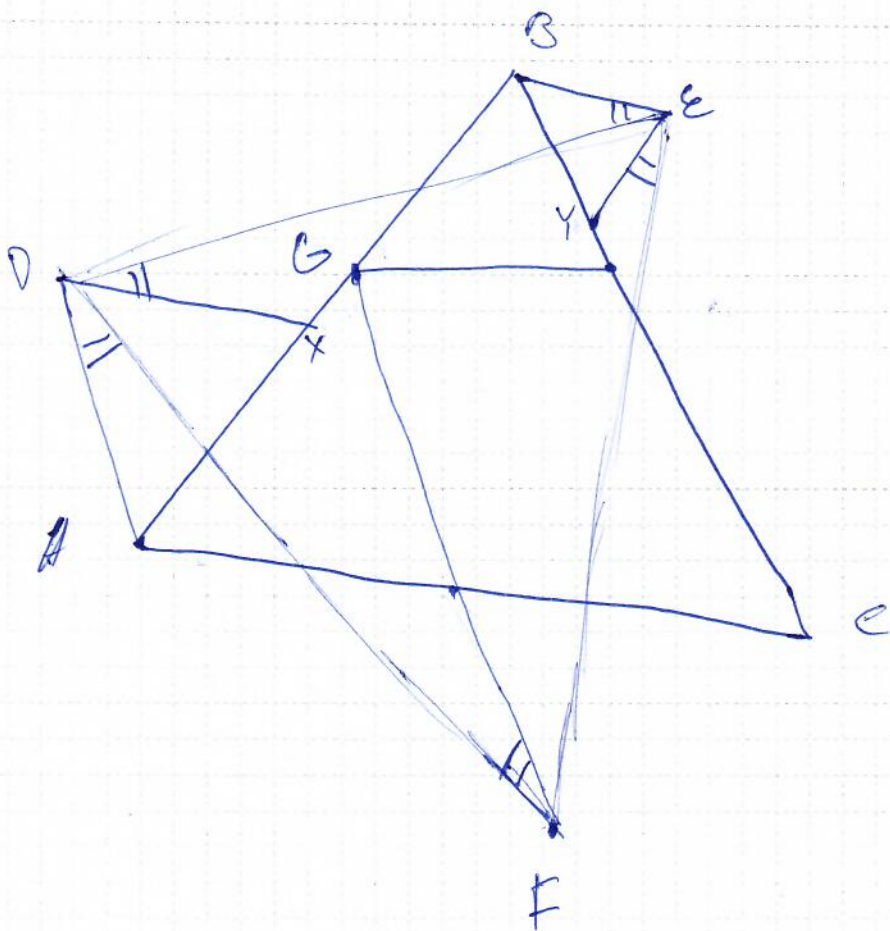
$$4^{n+1} - 4^n$$

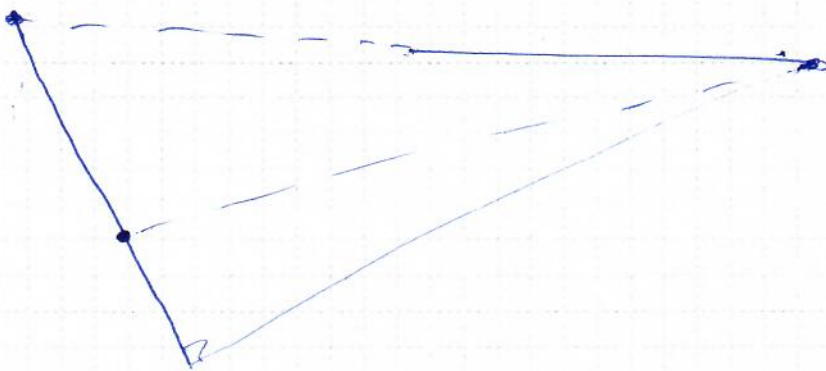
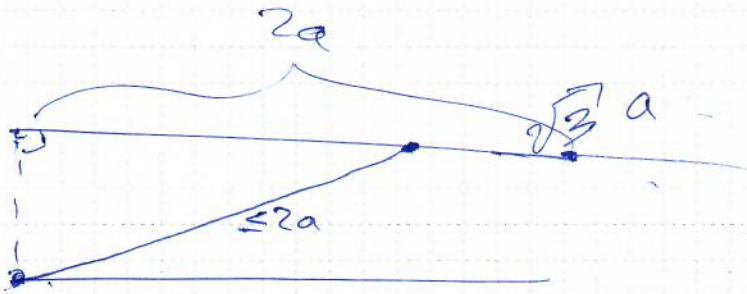
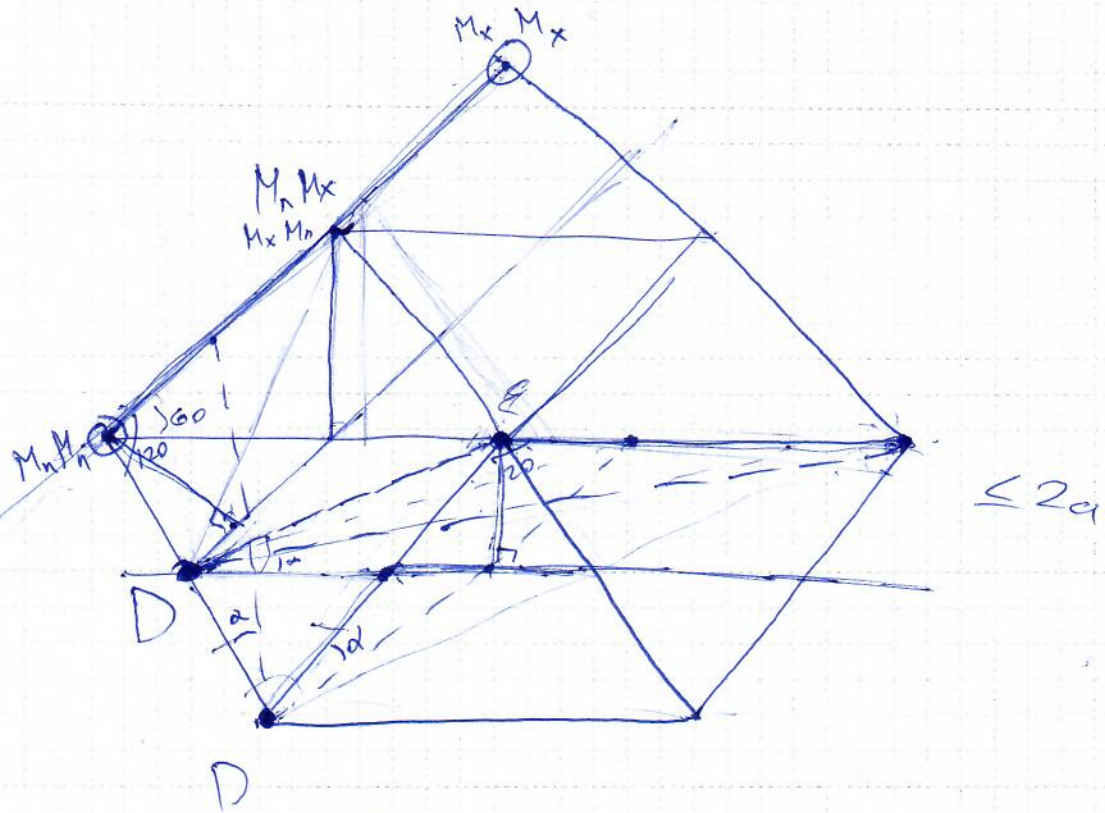
$$n \leq n! - 4^n \leq 4n$$

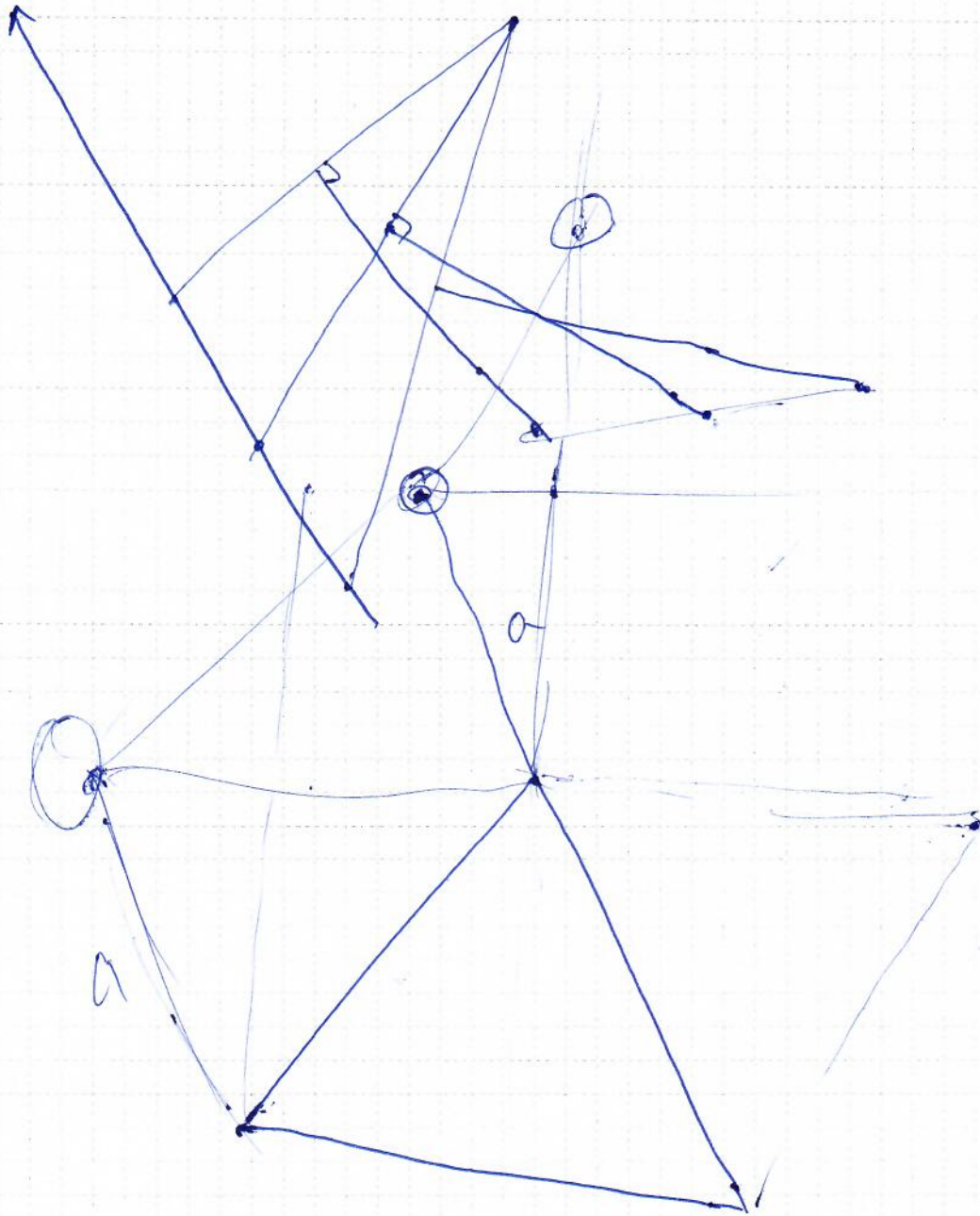
$$+1 \leq n \cdot n! - 3 \cdot 4^n \leq +4$$

$$1 \leq n \cdot n! - 3 \cdot 4^n \leq 4$$





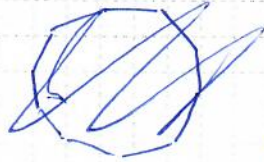




0 1 2 3 4 5 6 7 8 9

~~Handwritten scribbles~~

~~Handwritten scribbles~~



$$M(S_n) \geq M(S_{n-2}) + 3$$

0 0
 $a_1 a_2$

$u a_i$

1

~~$u a_i$~~

$a_1 a_i$

$a_1 a_2$

~~$a_i \rightarrow a_i$~~

0 ~~$u a_i$~~
 $a_2 a_i$

$a_1 a_i$

~~$u a_i$~~

~~$a_i \rightarrow a$~~

1 ↓

1 1 0 0 0 1 0 0
1 0 0 0 0 1 0 0 $u a_i$

$a_1 a_i$ ~~$u a_i$~~ \rightarrow

0 1 1 0 0 ... 0

$a_2 a_j$ ~~$u a_i$~~ \rightarrow

0 0 1 0 0 ... 0

$0 u a_i \rightarrow 0$

~~$u a_i$~~ \rightarrow

1 1 0 0

$0 u a_i \rightarrow a_i$

1 1 0 0 0 1 \rightarrow 1 \rightarrow

1 $u a_i \rightarrow a_i$

$f(a_1, a_2)$

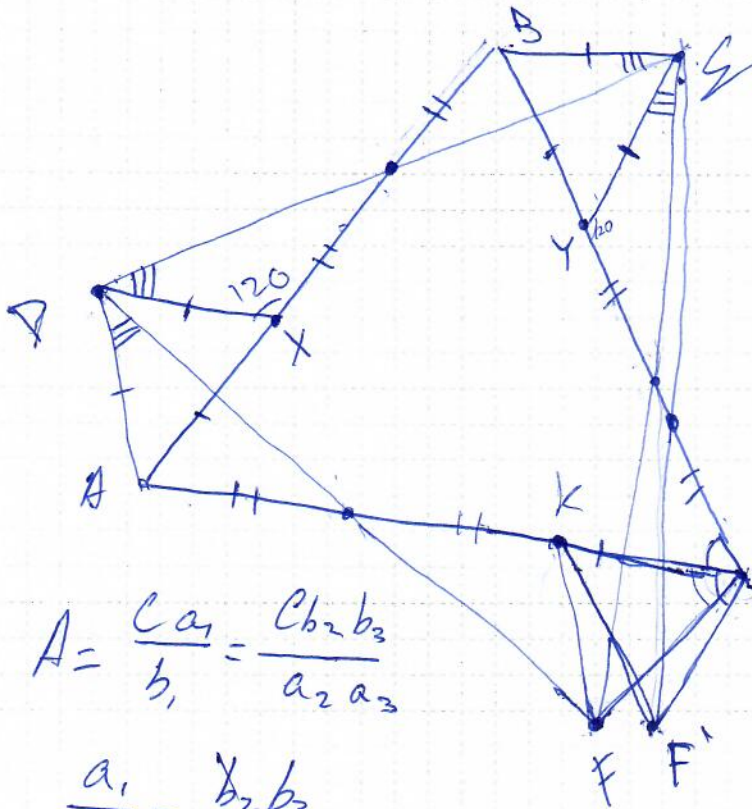
0

$0 u a_i \rightarrow 1$

$f(a_1, \dots)$

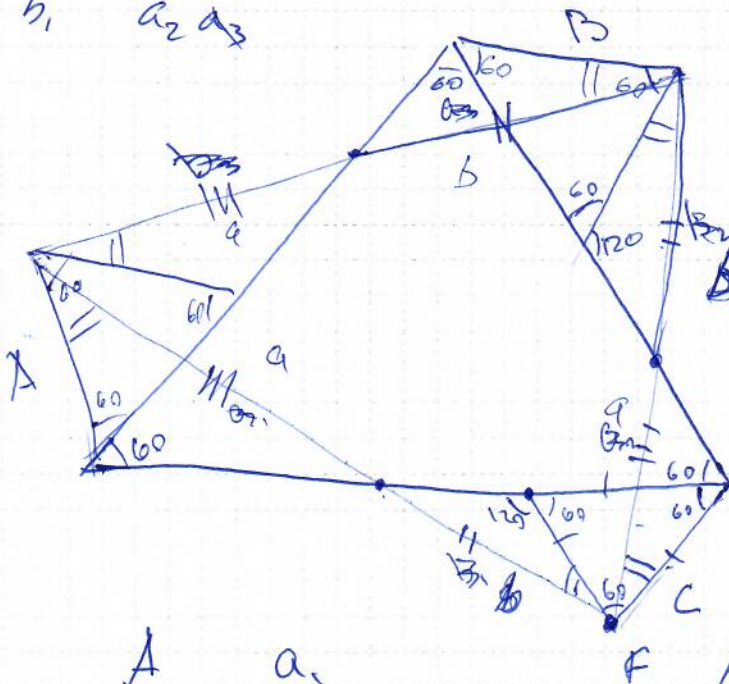
f

$f(a_2, \dots)$



$$A = \frac{Ca_1}{b_1} = \frac{Cb_2 b_3}{a_2 a_3}$$

$$\frac{a_1}{b_1} = \frac{b_2 b_3}{a_2 a_3}$$



$$\frac{A}{c} = \frac{a_1}{b_1}$$

$$\frac{B}{c} = \frac{b_2}{a_2}$$

$$\frac{A}{B} = \frac{b_3}{a_3}$$

$$A = \frac{Ca_1}{b_1}$$

$$A = a_1 b_1$$

$$A = \frac{B b_3}{a_3}$$

$$B = \frac{C b_2}{a_2}$$

- 1) 1
- 2) 2
- 3) 6
- 4) 24
- 5) 120
- 6) 720
- 7) 5040
- 8) 40320
- 9) 362880
- 10) 3628800

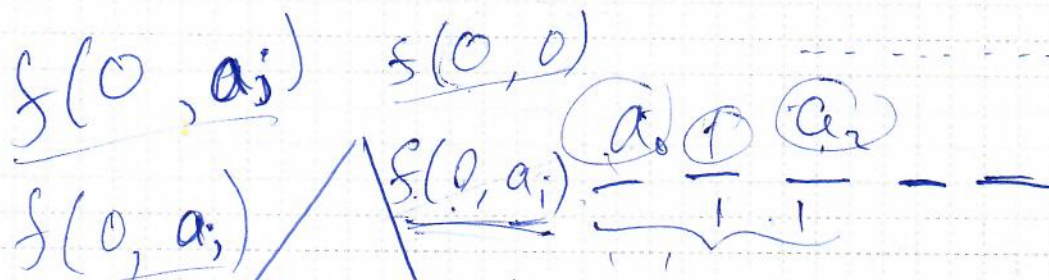
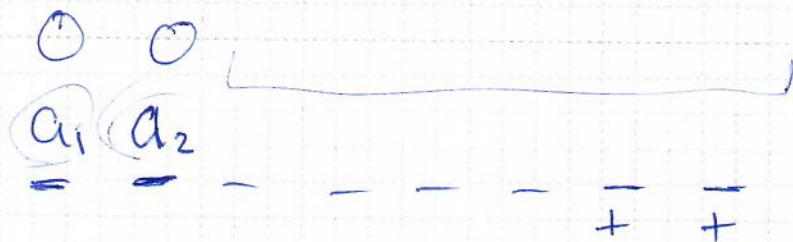
$$\begin{array}{r} \times 720 \\ 7 \\ \hline \times 5040 \\ 8 \\ \hline \times 40320 \\ 9 \\ \hline \times 362880 \end{array}$$

- 0) 1
- 1) 4
- 2) 16
- 3) 64
- 4) 256
- 5) 1024
- 6) 4096
- 7) 16384
- 8) 65536
- 9) 262144
- 10) 1048576

$$\frac{B}{A} = \frac{b}{a}$$

$$\begin{array}{r} \times 64 \\ 4 \\ \hline 16 \\ 24 \end{array}$$

$$\begin{array}{r} 2048 \\ 4096 \\ \times 8192 \\ 2 \\ \hline \times 16384 \\ 2 \\ \hline \times 32768 \\ 2 \\ \hline \times 65536 \\ 2 \\ \hline \times 131072 \\ 2 \\ \hline 262144 \\ 2 \\ \hline \times 524288 \\ 2 \\ \hline 1048576 \end{array}$$



$$a_0 \parallel a_2 = a_3$$

$$a_3 \parallel a_1 = \text{const}$$

$\frac{\text{const}}{\text{const}}$

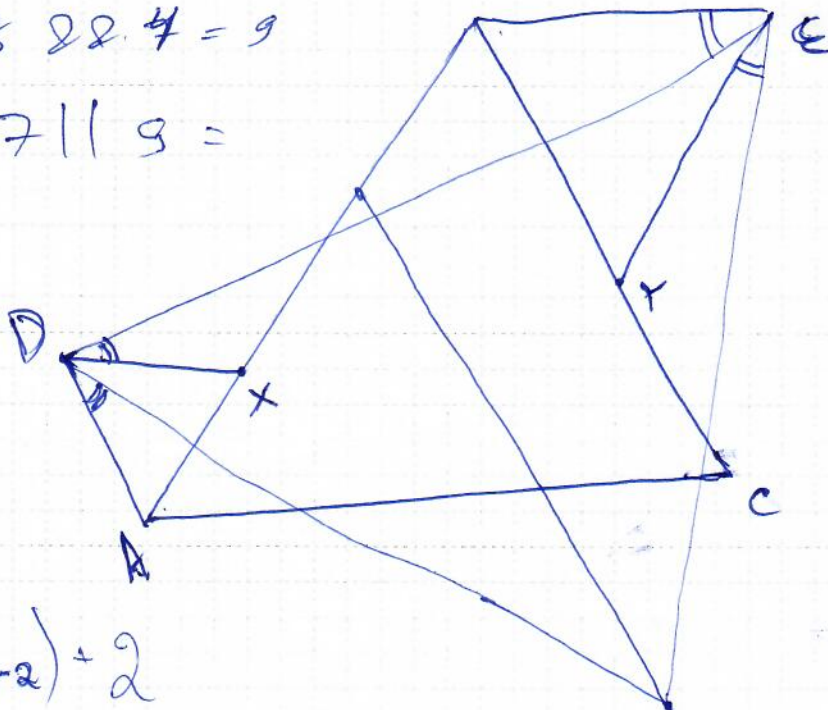
$$1 \parallel 3 = 6$$

$$3 \parallel 5 = 8 \quad 6 \parallel 2 = 7$$

$$8 \parallel 4 = 9$$

$$7 \parallel 9 =$$

$C(S_n)$



$$C(S_n) \geq C(S_{n-2}) + 2$$

- 1) 4
- 2) 16
- 3) 64
- 4) 256
- 5) 1024
- 6) 4096
- 7) 16384
- 8) 65536
- 9) 262144
- 10) 1048576

4^n

$$\begin{array}{r}
 2048 \\
 4096 \\
 \times 8192 \\
 \hline
 2 \\
 \times 16384 \\
 \hline
 2 \\
 \times 32768 \\
 \hline
 2 \\
 \times 65536 \\
 \hline
 2 \\
 \times 131072 \\
 \hline
 2 \\
 \times 262144 \\
 \hline
 2 \\
 \times 524288 \\
 \hline
 2 \\
 \hline
 1048576
 \end{array}$$

- 1) 1
- 2) 2
- 3) 6
- 4) 24
- 5) 120
- 6) 720
- 7) 5040
- 8) 40320
- 9) 362880
- 10) 3628800

$n!$

+4

$$\begin{aligned}
 & (n-3)n! + \text{const} \\
 & + n \cdot n! - 3 \cdot 4^n \\
 & n! - 4^n \Rightarrow 4n \Rightarrow 4
 \end{aligned}$$

$$(n+1)n! - 4 \cdot 4^n - 4! + 4^n$$

$$\underbrace{n! - 4^n}_{> 4n}$$

$$+ n \cdot n! - 3 \cdot 4^n + 4$$

$$\underbrace{(n-3)n! + 3(n! - 4^n)}_{> 4}$$

$$\underbrace{3 \cdot 4n}_{> 4}$$