

2cd 7

NIE

Text moim mieli 'ilka zmo'adu z tą samą  
waga. w takim przypadku 'olejajaci' nie ma znaczenia

Zad 3

a:3 b:1 c:1 d:1

abcda

00001011 00001011 00001000

b → 001  
c → 01  
d → 1  
a → 000



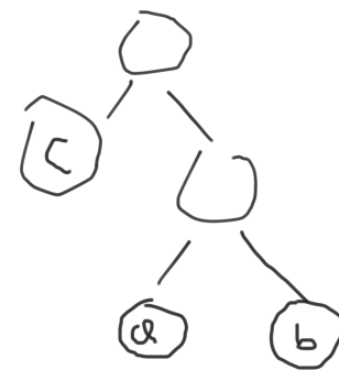
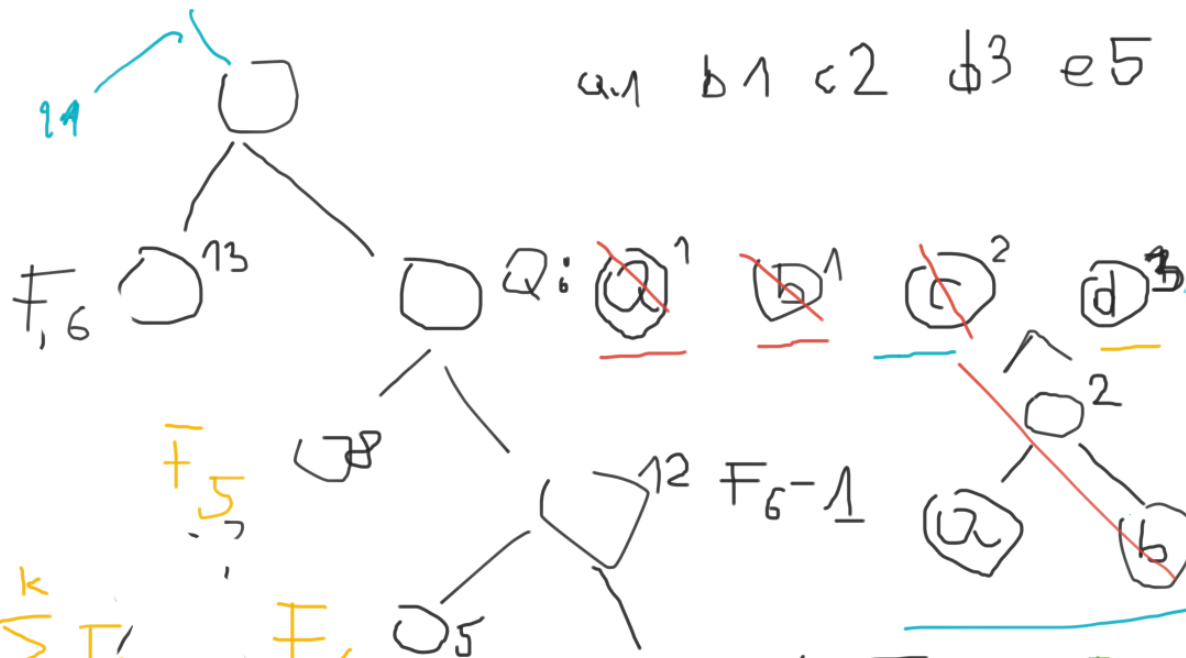
000 000 001 01 1 000  
a a b

11 0 0 1 0 1 0 0 1

0100 0100 0100 01  
c a d b d c

Zad 3

a.1 b.1 c.2 d.3 e.5 f.8 g.13 h.21



$$F_{k+1} = \bigwedge_{i=0}^k F_i$$

A diagram of a node in a tree structure. The node is represented by a circle. To its left is the label  $F_k$ . To its right is the summation  $\sum_{i=0}^{K-1} F_i$ . Two lines extend downwards from the bottom of the circle, representing its children.

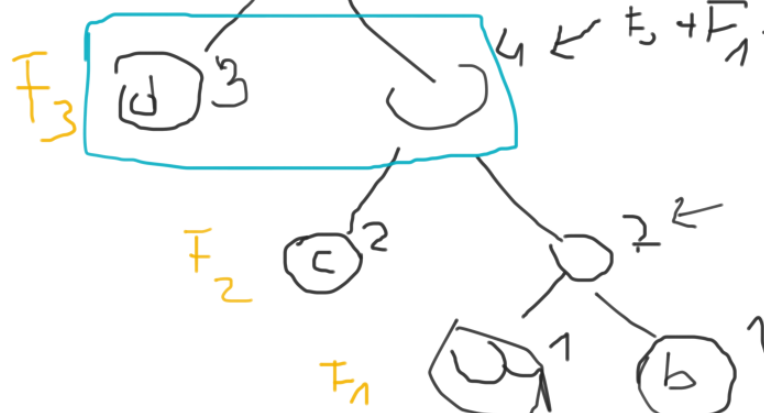
$$+5$$

$$F_9$$

$$1) 7 \leftarrow \sum F_i = F_5 - 1$$

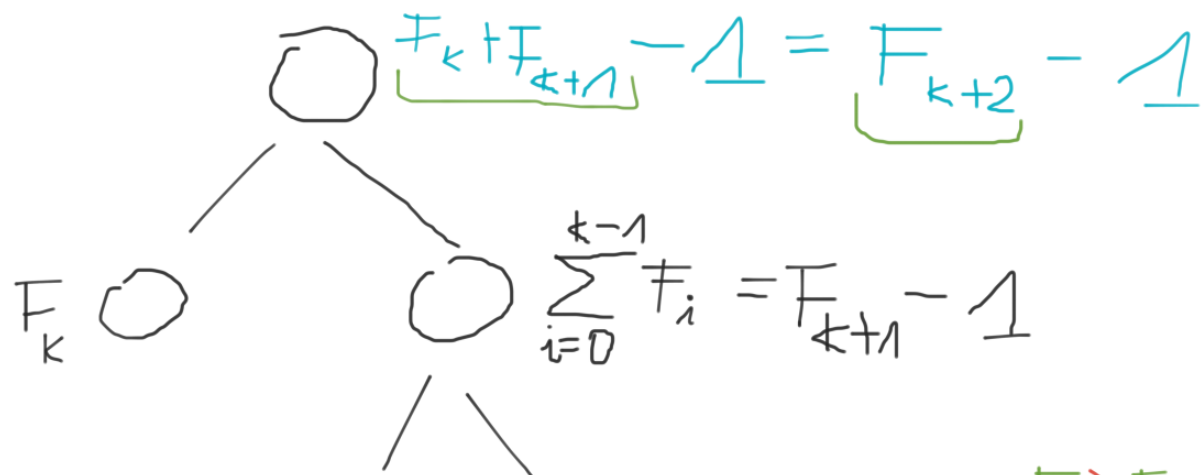
$$4 \leftarrow F_3 + F_1 + F_2 = F_y - 1$$

$$F_0 + F_1 = F_3$$

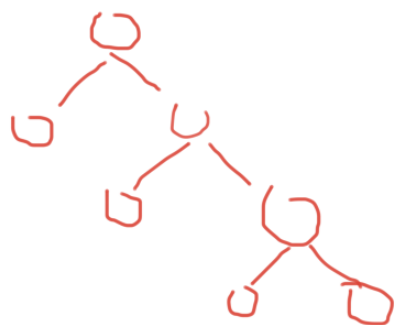


2nd 3

$$\underbrace{F_0, F_1, \dots, F_k}_{F_{k+2}-1}, F_{k+1}, F_{k+2}-1$$



$$F_{k+2} > F_{k+2}-1 > F_{k+1}$$



~~4~~ ~~0~~  

$$\sum_{i=0} F_i = F_2 - 1 \quad L = F_0 = 1 \quad P = F_2 - 1 = 2 - 1 = 1 \quad L = P$$

2nd ind

$$\sum_{i=0}^k F_i = F_{k+2} - 1 \quad (*)$$

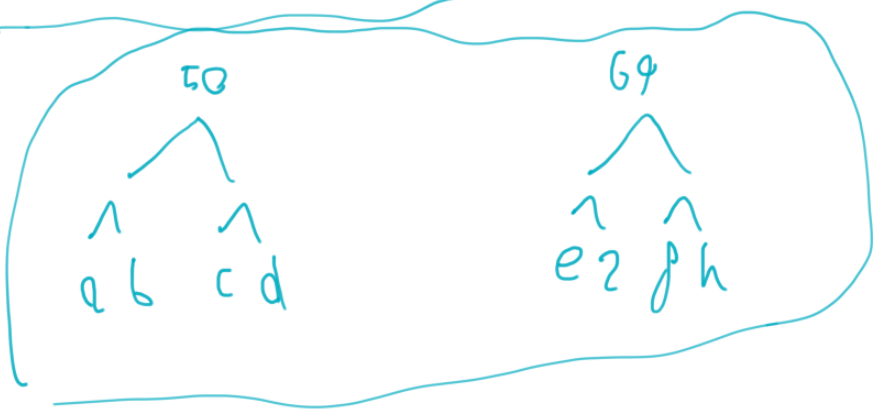
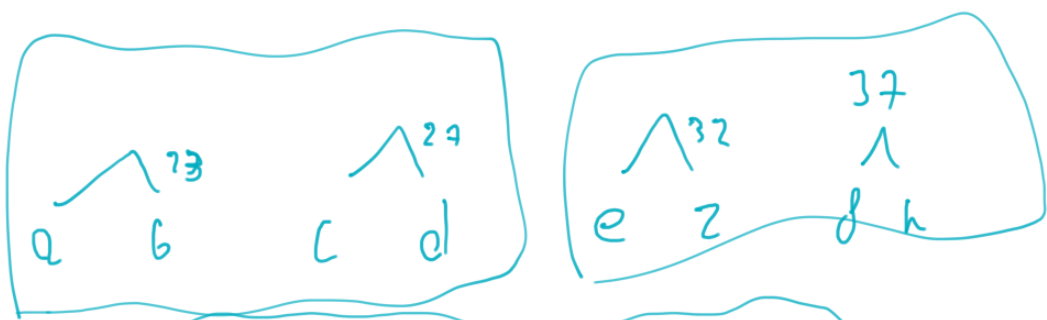
$$F_{k+2} = F_k + F_{k+1}$$

$$\sum_{i=0}^{k+1} F_i = \underbrace{\sum_{i=0}^k F_i}_{(*)} + F_{k+1} = \underbrace{F_{k+2} - 1}_{(*)} + F_{k+1} = F_{k+3} - 1$$

$$F_6 + F_5 = F_7$$

Zad 4

~~14~~, ~~17~~, ~~17~~, ~~18~~, ~~18~~, ~~18~~, ~~19~~ || 25, 27, 28, 37, 50  
70



2nd 4

$$a_1, a_2, a_3, \dots, a_n$$

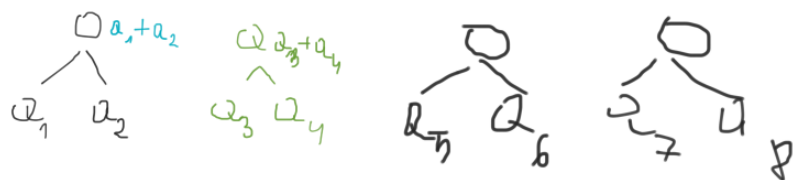
$$n = 2^k$$

$$a_n < 2a_1$$

$$a_1 \leq a_2 \leq a_3 \leq \dots \leq a_n$$

$$\sum_{i=1}^{2^m} a_i > \sum_{i=2^n-2^{m-1}}^{2^n} a_i$$

$$m=2$$



$$a_1+a_2 / a_3+a_4 / a_5+a_6 / a_7+a_8 \mid \dots a_{16}$$

$$(a_1+a_2) + (a_3+a_4) \geq 2a_1 + 2a_3 > a_5+a_6 > a_7+a_8$$

20d2  
2b

21  
10

0 1  
a b

0 1  
b a



a: 11  
b: 3  
c: 3  
d: 2  
e: 1



1, 2, 3, 3, 11

S Q:1  
a b: 21  
c: 001

d: 0001

5: 0000

117

38 bit

a) & c)

01101101100110011000111100011110001000110011

( )

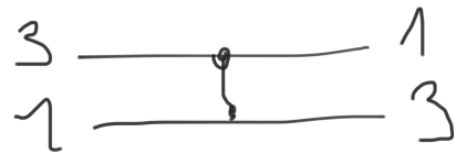
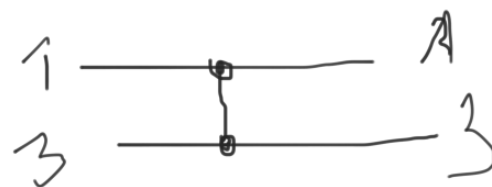
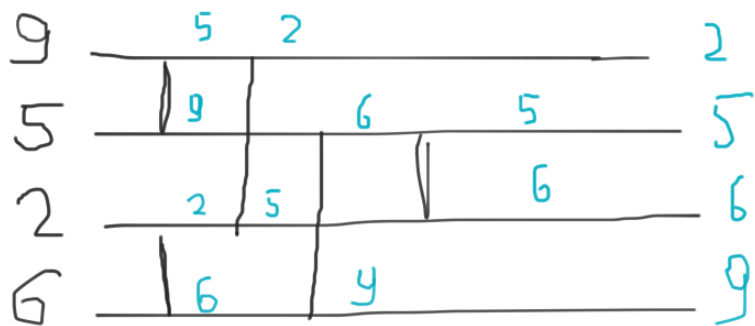
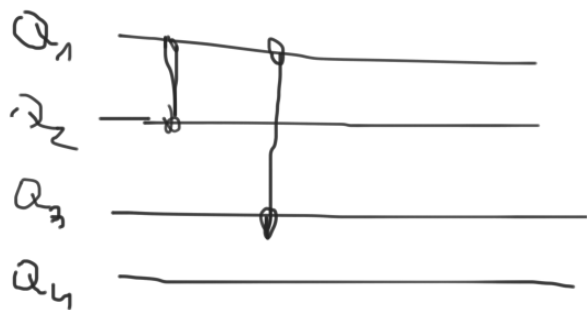
$$3 \text{ bit} \times 20 \text{ million} = 60 \text{ bit}$$
$$60 - 38 = 22 \text{ Git} > \frac{1}{3}$$

d)

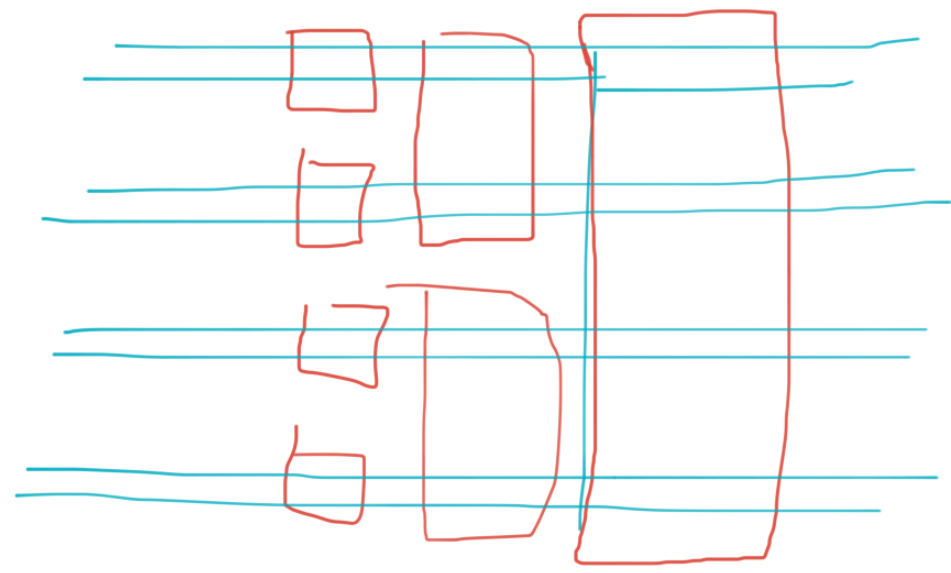
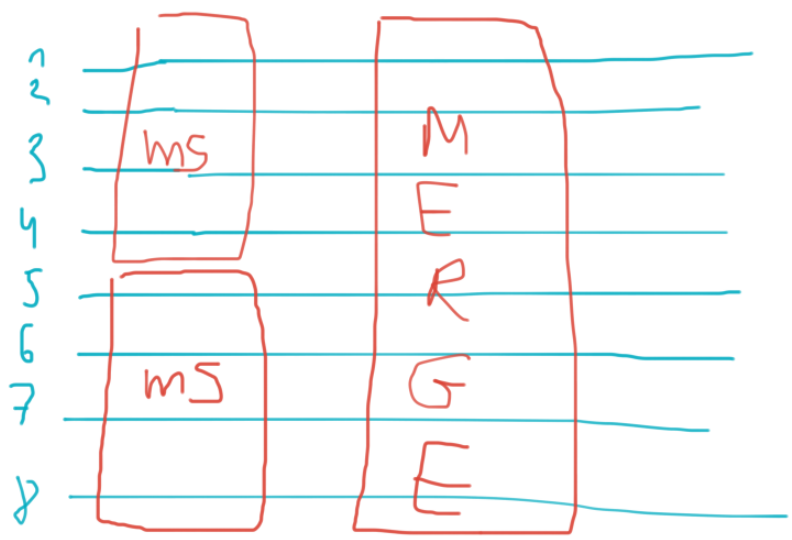
10010010011001100111000001111011100111001100...  
u c c c u c u c u u s u u u u b u u c u X

13

$Z_{3d}$



Zad 5



$$f: \mathbb{R} \rightarrow \{0, 1\}$$

$$f(x) = \begin{cases} 1 & x \geq t \\ 0 & x < t \end{cases}$$

2	0	1	1
4	0	0	0
1	1	1	1
3	0	0	1

0 1 1 0 0 0 0

1 1 0 0 0 0 0



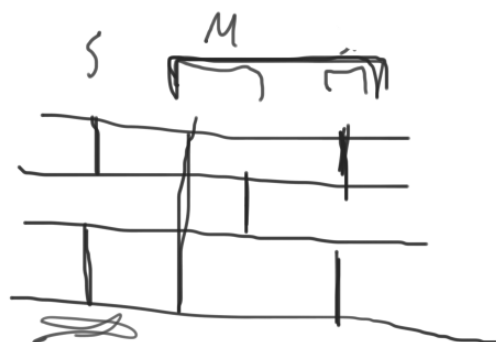
0 0 1 1 0 0 1  
↔

0 0 1 1 0 0 0

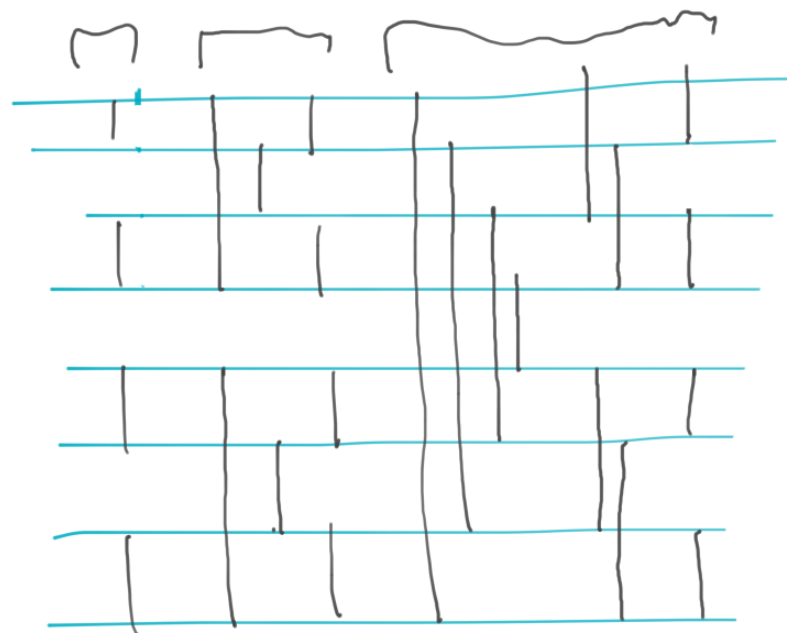
$$n=2$$

II

$$n=4$$



$$n=8$$

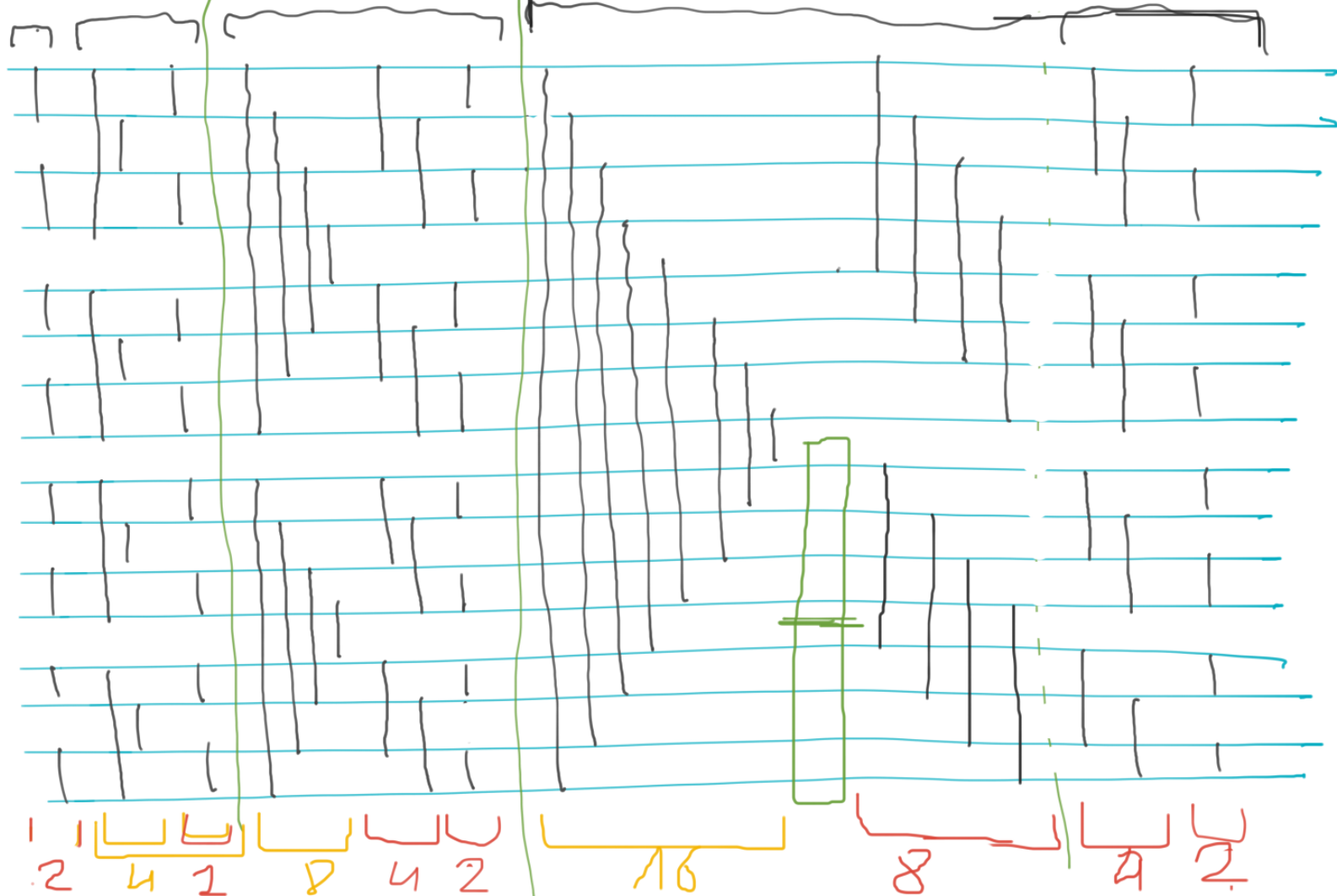




$2 \times 2$   $4 \times 4$

$2 \times 8$

16





2nd 5

8	1	3	2	2	2	7
4	8	2	3	3	1	2
2	2	8	4	4	5	3
3	3	4	8	1	3	4
7	5	5	7	8	6	5
5	7	7	5	5	5	6
6	1	7	6	6	8	7
1	6	6	7	7	7	8

2nd 3 | 5/7 18

1	5
5	1
4	4
3	3

0	1
1	0
1	1
1	1

$$f(x) = \begin{cases} 1 & x \geq 4 \\ 0 & x < 0 \end{cases}$$

1	5	2	0
0	2	5	1



718

$n = 4$   
 $\underline{\quad}$   
 $\underline{\quad}$   
 $\underline{\quad}$   
 $\underline{\quad}$

0000  
 0001  
 0010

⋮

1111

$a_i$  1  
 2  
 3  
 $a_j$  5

0  
 0  
 1  
 1

→

1  
 4  
 3  
 2  
 0  
 1  
 1  
 0

sprawdzić