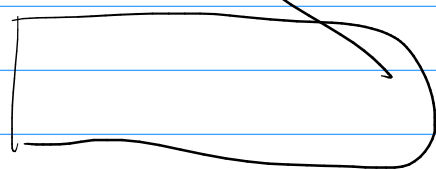
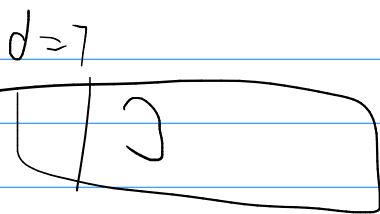
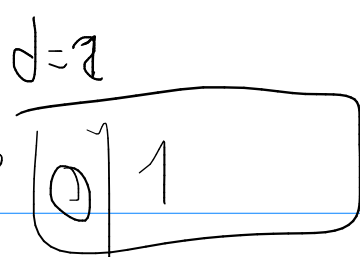


2

$D=4$

00	29
01	0
10	-7
11	-7

0



10

0 10

For (Buckets)

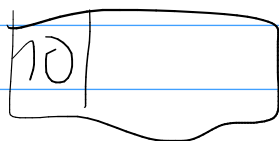
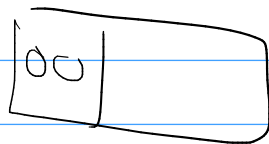
a b c
00 10 10

a, b, c

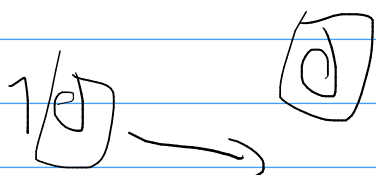
Split (bucket, ^{mark}~~index~~, t)

t=2
11

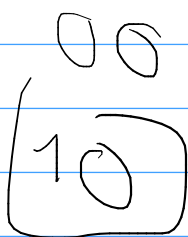
bucket



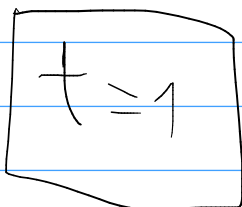
mark = 0



d=1
t=1

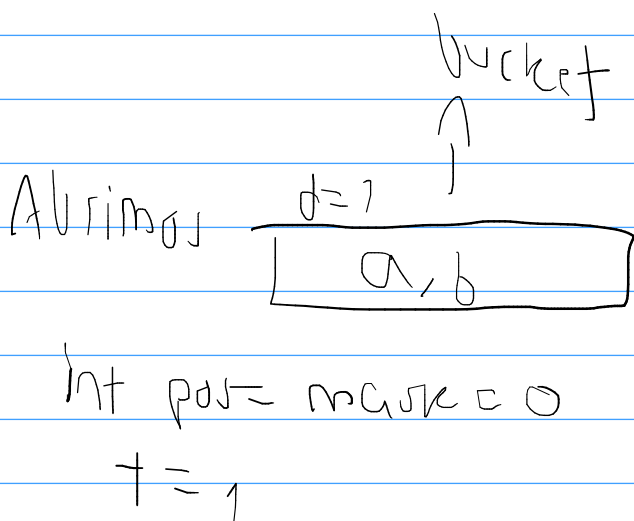
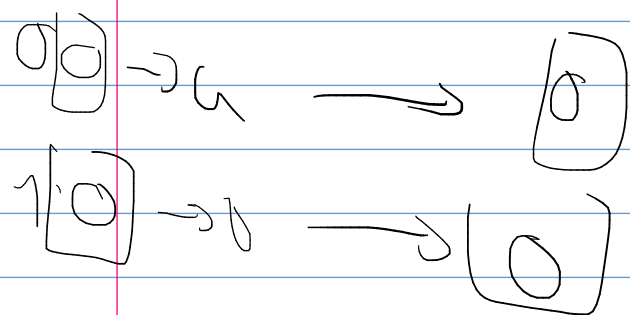
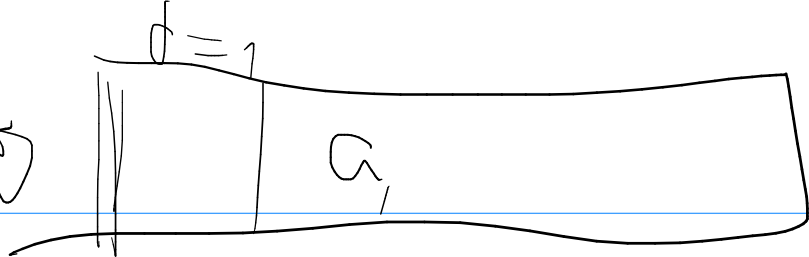


00



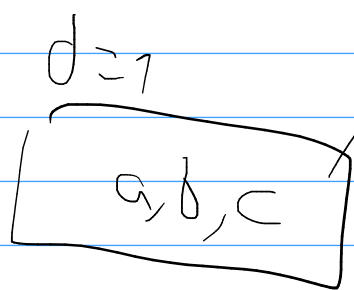
mark

00	0
01	-1
10	-1
11	-1



key = b
Index = b
mark = 0

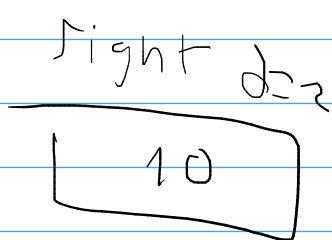
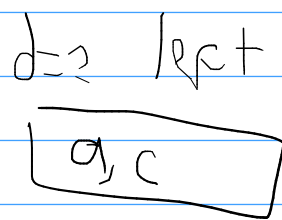
00	0
01	-1
10	-1
11	-1



mark = 0
pos = 0
t = 1

len = 0
new_index = 0 | 10
= 10

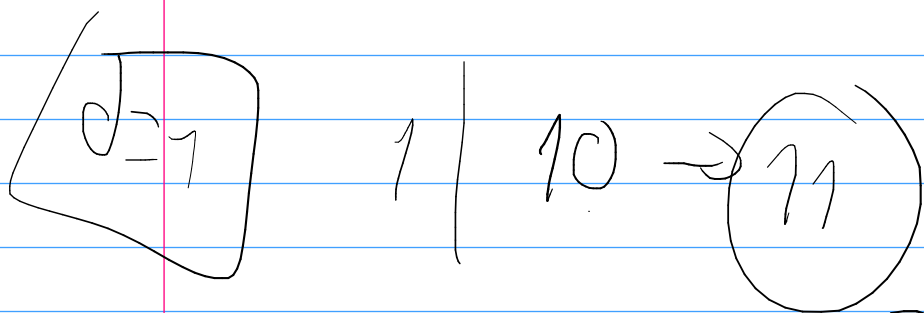
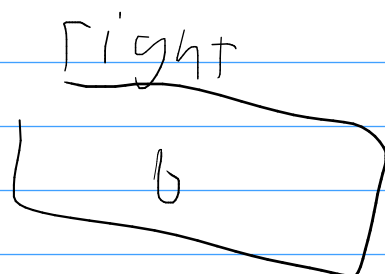
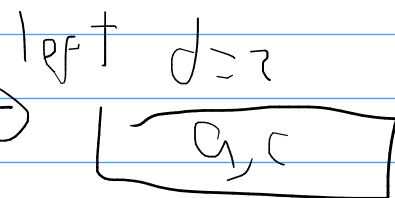
New_mask = 1 | 10 = 11



value
a → 00 → 00
b → 10 → 10
c → 00 → 00

⇒

00	0
01	-1
10	-1
11	-1



000

d = 2

000	0
001	-1
010	1
011	-1
100	-1
101	-1
110	-1
111	-1

$d=2$

a, c

Insert 100

d^c

$d=2$

10

index = 100
mask = 0
t = 1
d = 2
pos = 0
mask = 1

while ()
1st Iteration
mask = 11
mask = 100 & 11
mask = 00
pos = 0
d = 2
t = 2
scale del bump

d
000
a = 110
b = 010
c = 010

a, b, c

010

$d=2$

a, c, d

Split

new_index = 00 | 100 = 100

new_mask = 111

010
010

010 / 100 = 110
2

new_index = 010 / 100 = 110

left d = 3

a, c

Right d = 3

d

left d = 3

a, c

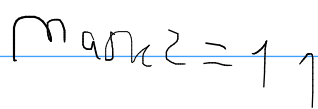
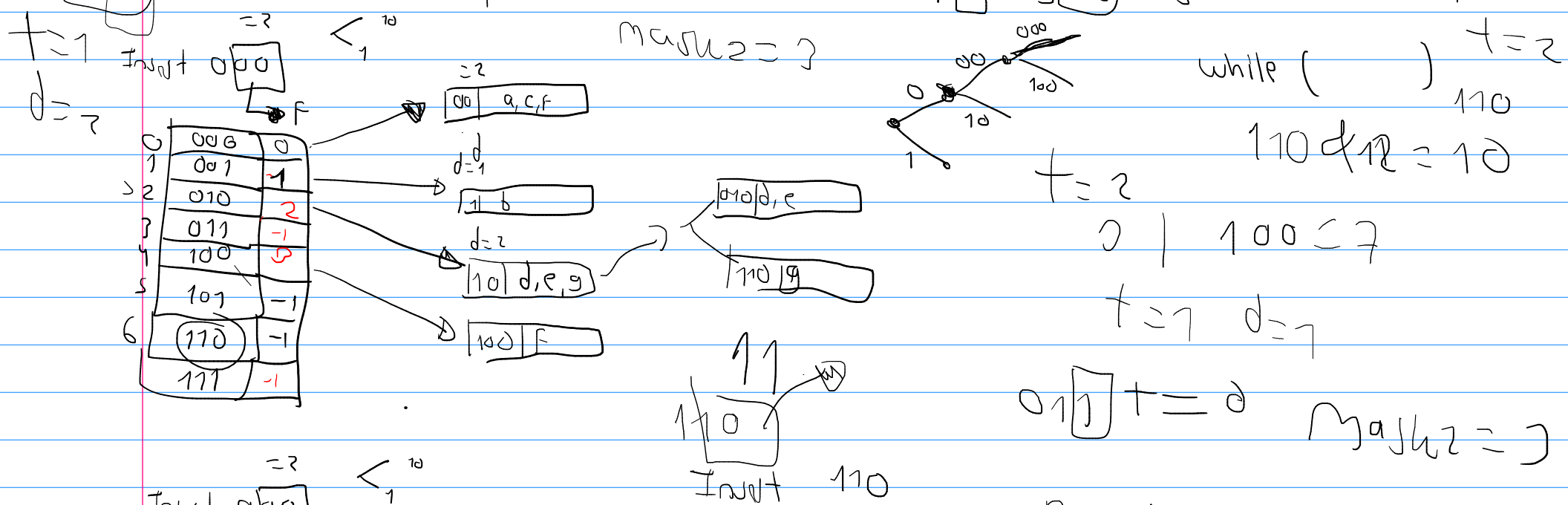
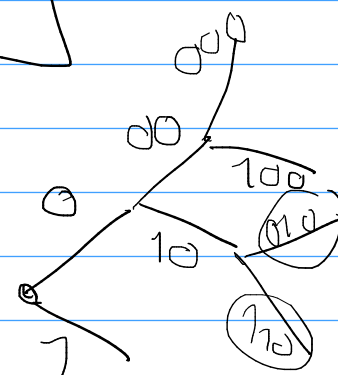
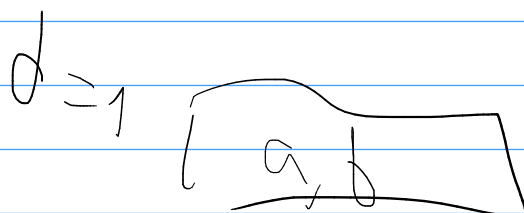
000	0
001	-1
010	1
011	-1
100	2
101	-1
110	-1
111	-1

$d=2$

b

$d=3$

d


$$t = d$$


000	
001	
010	
011	
100	
101	
110	
111	

101

$d=2$

$a \rightarrow 1 \rightarrow 001$

$b \rightarrow 5 \rightarrow 101$

$c \rightarrow 7 \rightarrow 001$

00	-1
01	0
10	-1
11	-1
100	

101 | a, b, c

101

001

01

(011) \rightarrow)

split

bucket

index = 001

$t=2$

pos = 0

new_index = 01 | 100

\rightarrow (101)

new_mask = $2^{t+1} - 1$

= 7 = (111)

left

10

11

a, c

right
b

00 | a, b, c

$a \rightarrow 000$

$b \rightarrow 100$

$c \rightarrow$

000 = 0

010 = 2

110 = 1

100 \rightarrow 4

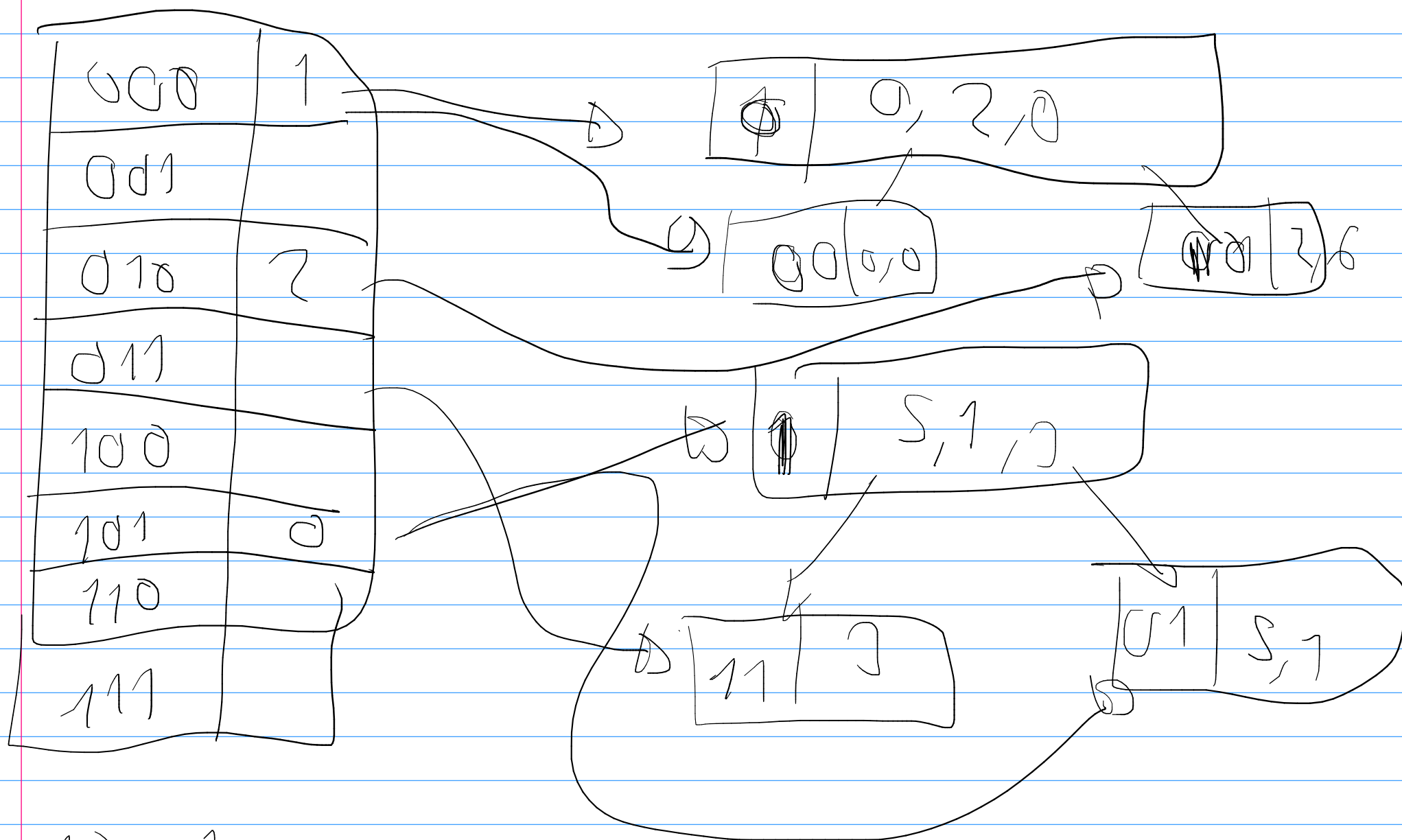
110 \rightarrow 6

100 \rightarrow

100 \rightarrow 4

000 \rightarrow 0

010 \rightarrow 2



010 - 2

101 1

001

110

000	5
001	
010	1
011	
100	
101	
110	
111	

$d=2$
 $\boxed{100 | a, b, d}$

$d=2$
 $\boxed{10 | c}$

\Rightarrow

9

000	5
001	
010	1
011	
100	2
101	
110	
111	

$d=2$
 $\boxed{000 | a, b}$

$d=2$
 $\boxed{10 | c}$

$d=3$
 $\boxed{100 | d}$

eliminating q_i

000	5
001	
010	1
011	
100	2
101	
110	
111	

$d=2$
 $\boxed{000 | \text{X}}$

$d=2$
 $\boxed{10 | c}$

$d=3$
 $\boxed{100 | d}$