computer?

calculator -> computer

computer -> 1 and 0

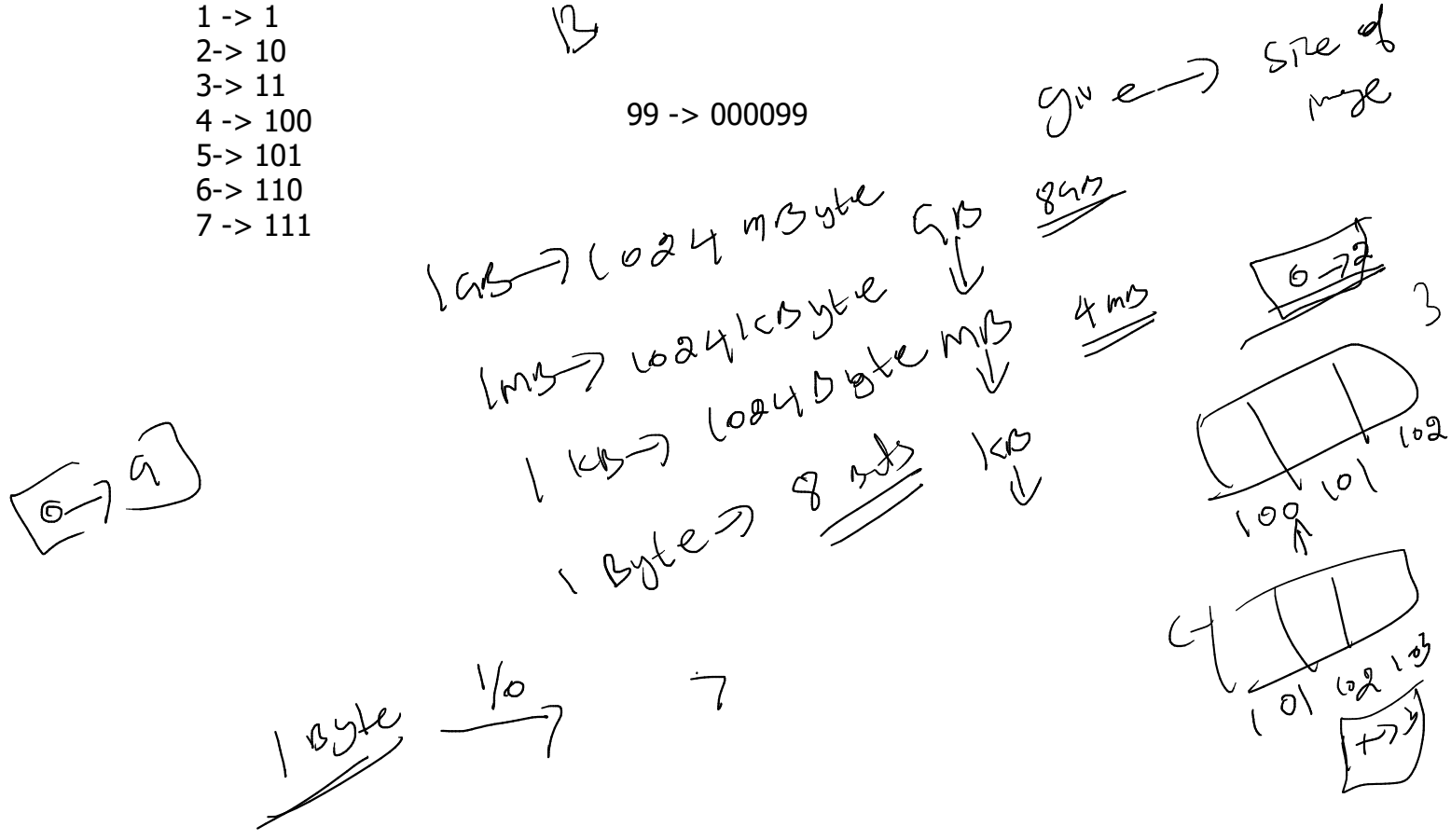
32 -> computer?

how?

convert 32-> 10
convert decimal -> binary

0 -> 0
1 -> 1
2-> 10
3-> 11
4 -> 100
5-> 101
6-> 110
7 -> 111

99 -> 000099



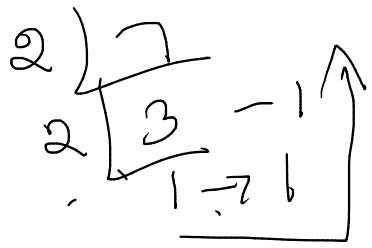
3^2

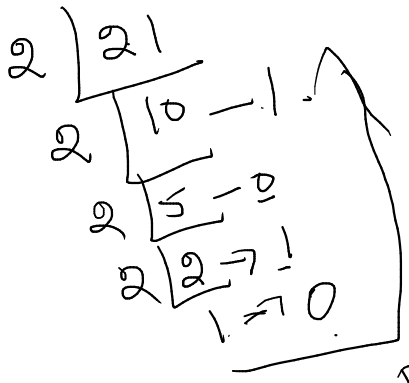
1 Byte → 8 bits

0 → 7

7 6 5 4 3 2 1 0

Decimal → Binary





Dec → Bin
21 → 10101

16 8 4 2 1
1 0 1 0 1

(21)

Dec → Bin
21 → 10101

Dec ←

De → Bi ←

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

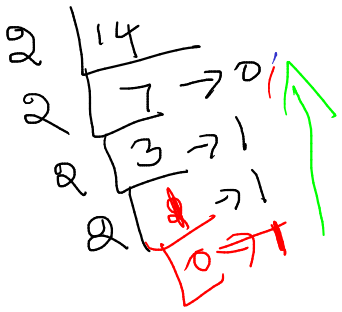
$(2^4 * 1) + (2^3 * 0) + (2^2 * 1) + (2^1 * 0) + (2^0 * 1)$

16 + 0 + 4 + 0 + 1 = 21

14

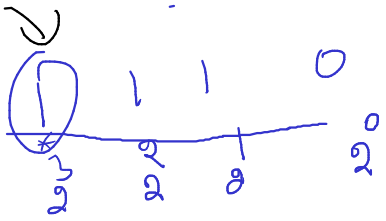
Dec → Binary

14 → 1110



1 1 1 0

Binary → Dec



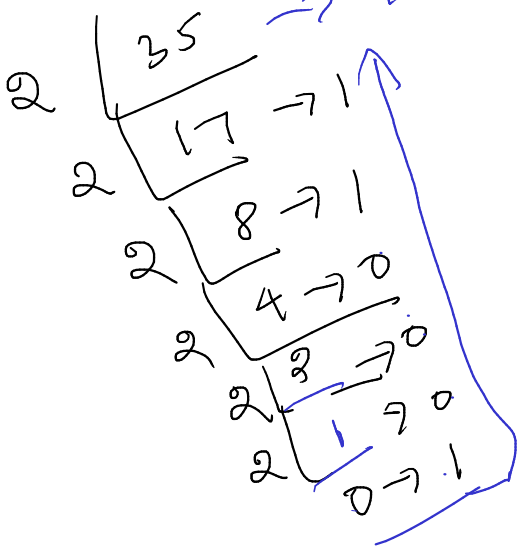
$= (2^3 * 1) + (2^2 * 1) + (2^1 * 1) + (2^0 * 0)$

$= 14 \quad (8 + 4 + 2 + 0)$

$= 14$

100011

35



$2^3 = 1$

0 1 0 0 0 1 1

5 4 3 2 1 0

$(2^5 * 1) + (2^1 * 1) + (2^6 * 1)$

$32 + 2 + 1$

35

7 6 5 4 3 2 1 0

1 0 0 0 1 1

2^7 2^6 2^5 2^4 2^3 2^2 2^1 2^0

$(2^5 * 1) + (2^4 * 0) + (2^3 * 0) + (2^2 * 0) + (2^1 * 1) + (2^0 * 1)$

$32 + 0 + 0 + 0 + 2 + 1$

$= 35$

2 | 11
2 | 5 → 1
2 | 2 → 1
2 | 1 → 0
0 → 1

4 3 2 1 0

11 → 1 0 1 1

2^3 2^2 2^1 2^0

$2 \to 1\ 0$

$= (2^3 * 1) + (2^2 * 0) + (2^1 * 1) + (2^0 * 1)$

$= 8 + 0 + 2 + 1 = 11$

8 | 11
8 | 1 → 3
0 → 1

11 → 13

Binary → 0 1

Octal → 0 1 2 3 4 5 6 7

8 10 8^1 8^0

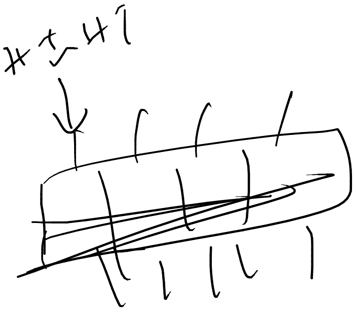
1 0

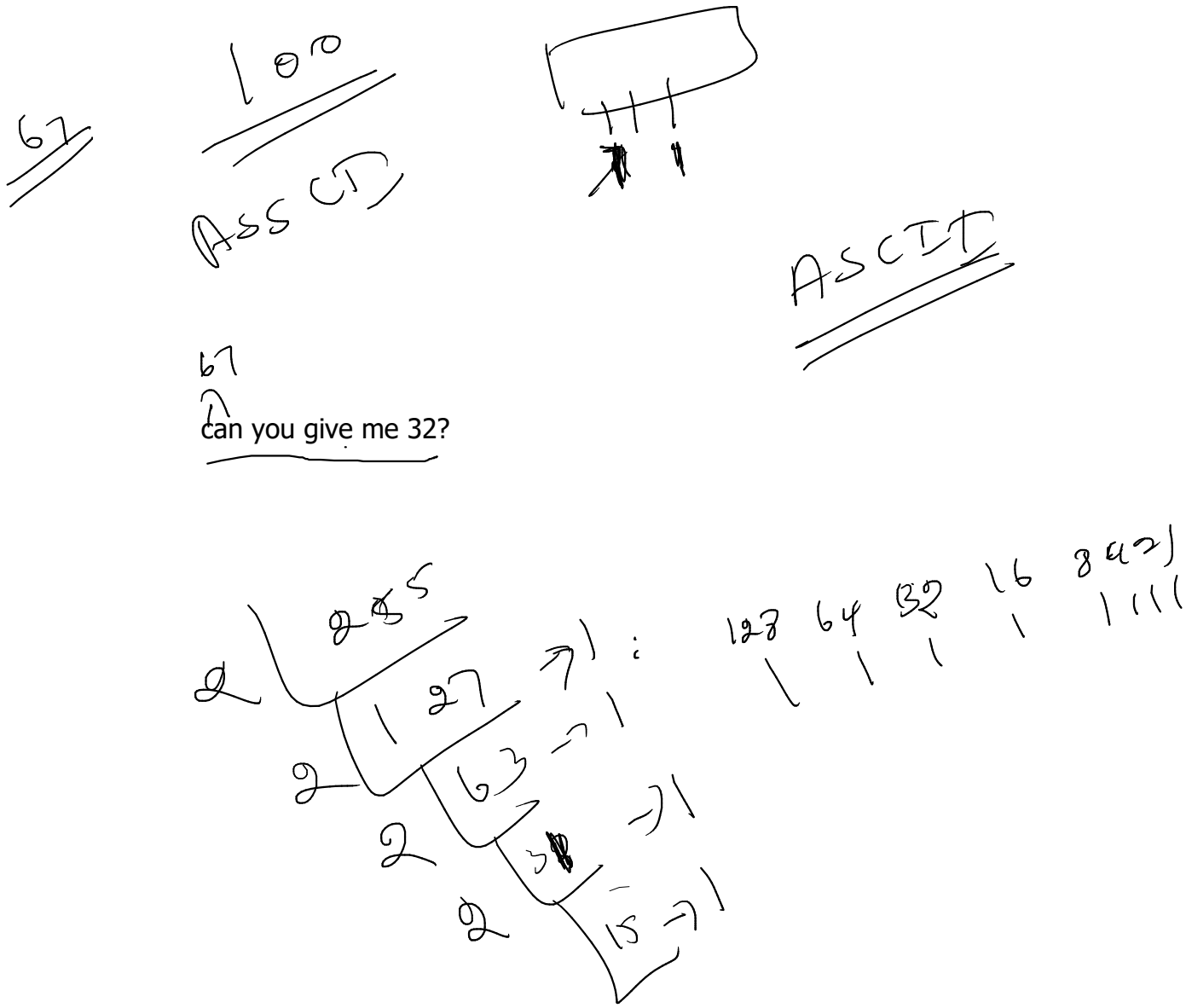
$(8^1 * 1)$ $8^0 * 0$

8

3 → 11

0 1 2 11 10





A (char to binary)

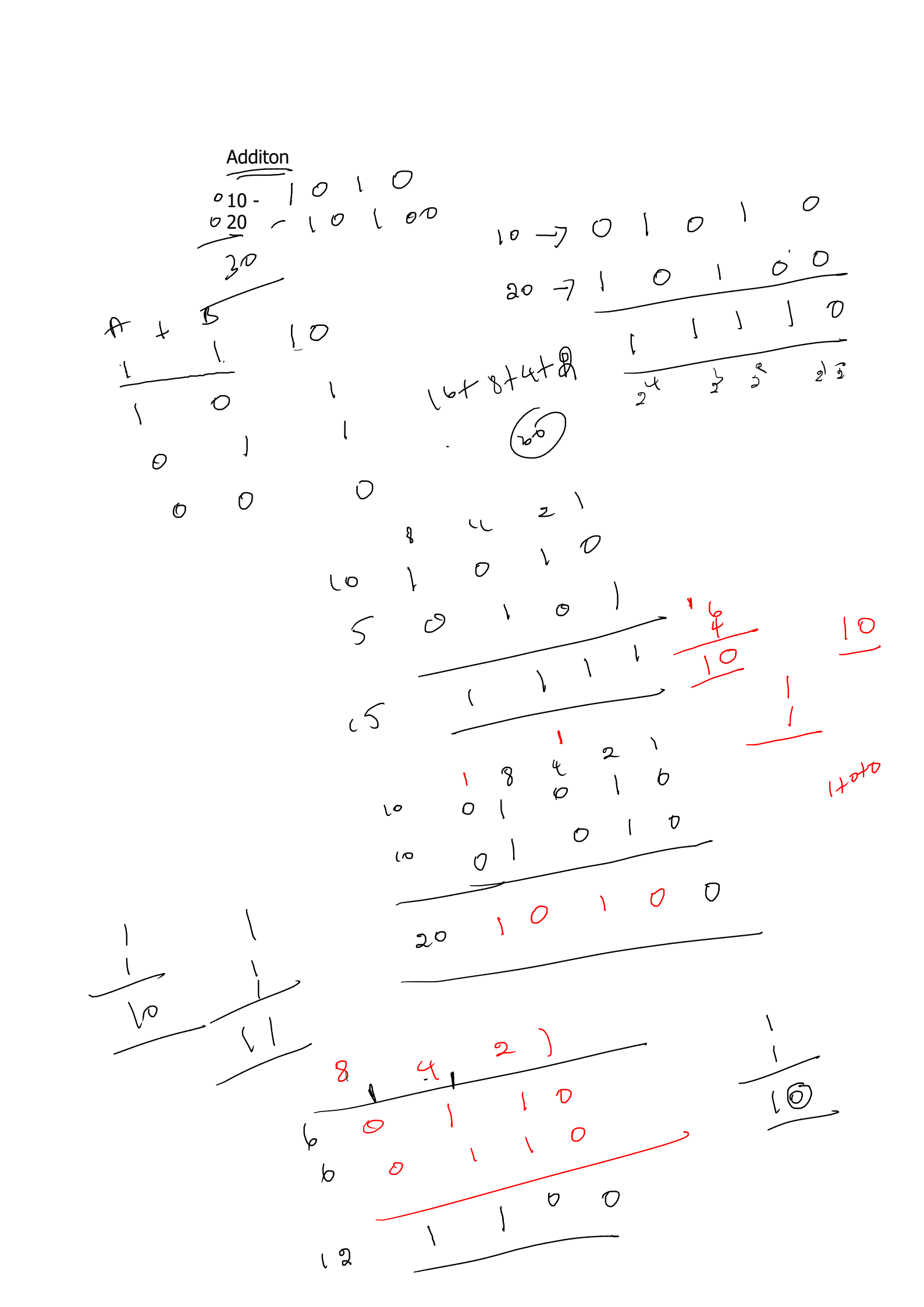
1. get ascii value(decimal) of A
2. convert this decimal to binary
3. store

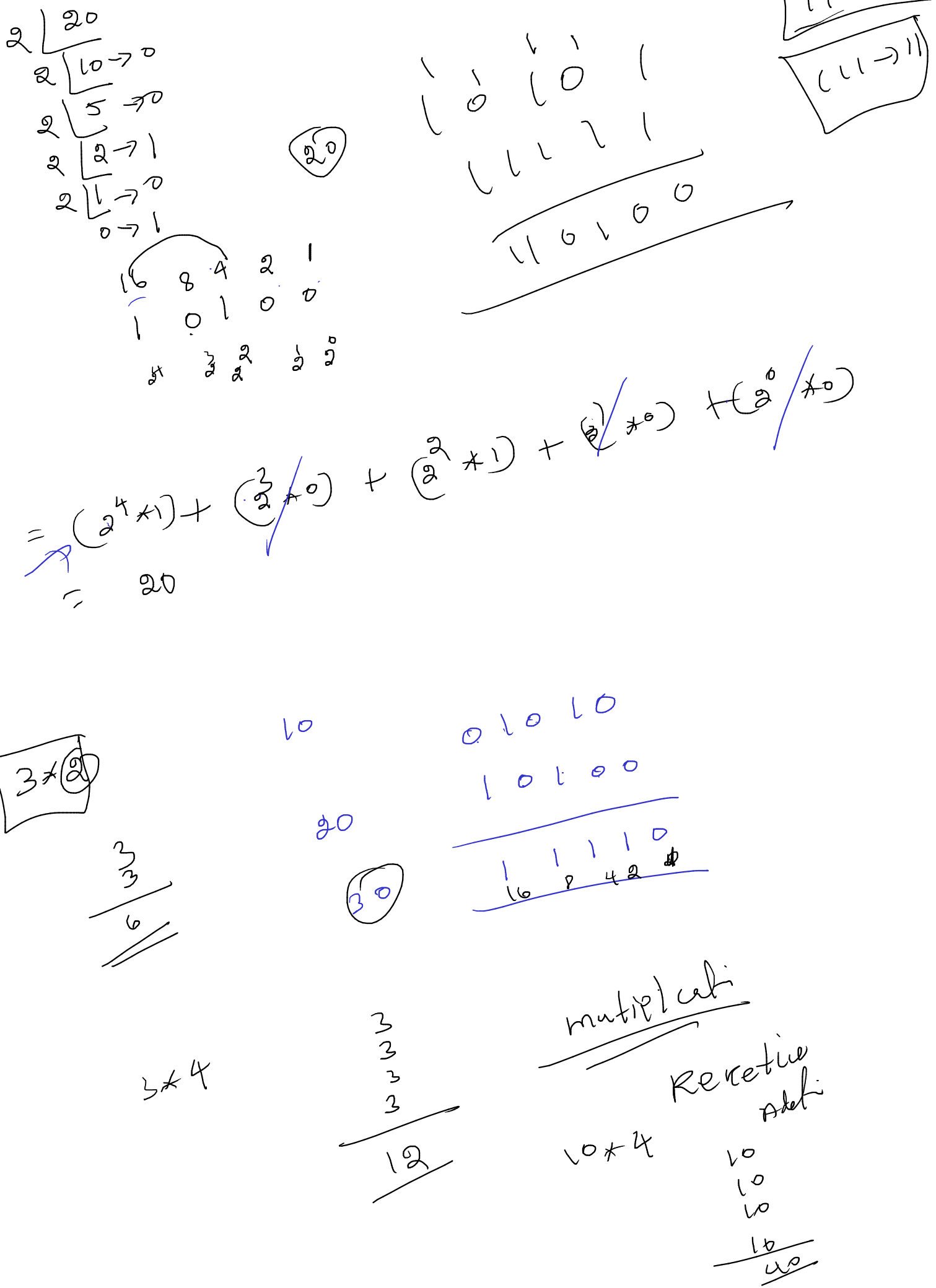
32 (Decimal to binary)

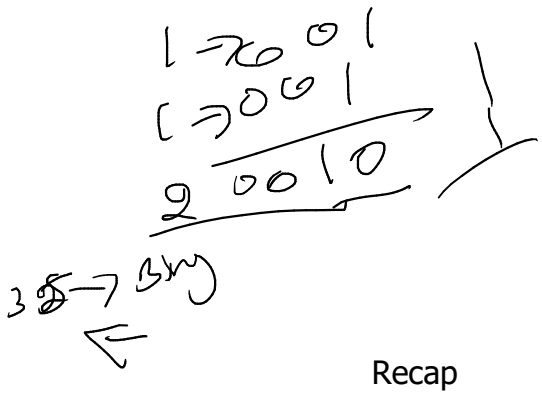
divide by 2

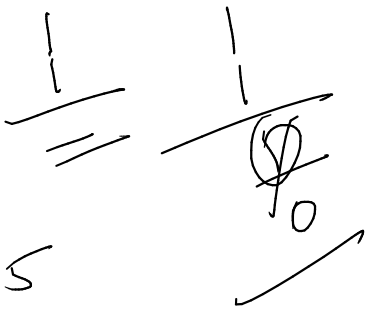
C A N
1000011 11000001 100110

Additon

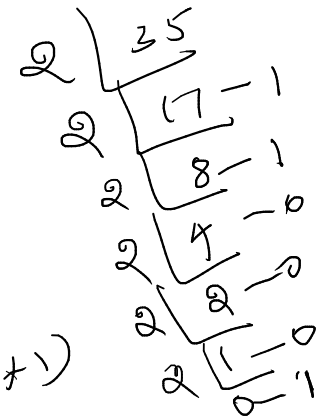


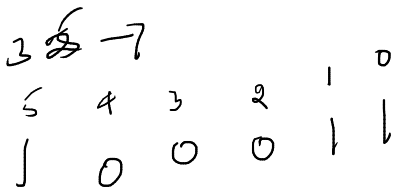

11 → 10
111 → 11
2 | 20
2 | 10 → 0
2 | 5 → 0
2 | 2 → 1
2 | 1 → 0
0 → 1
20
16 8 4 2 1
1 0 1 0 0
2^4 2^3 2^2 2^1 2^0
$= (2^4 * 1) + (2^3 * 0) + (2^2 * 1) + (2^1 * 0) + (2^0 * 0)$
$= 20$
3 * 2
6
10
20
30
0 1 0 1 0
1 0 1 0 0
1 1 1 1 0
16 8 4 2
3 * 4
12
multiplication
Recursive
10 * 4
40

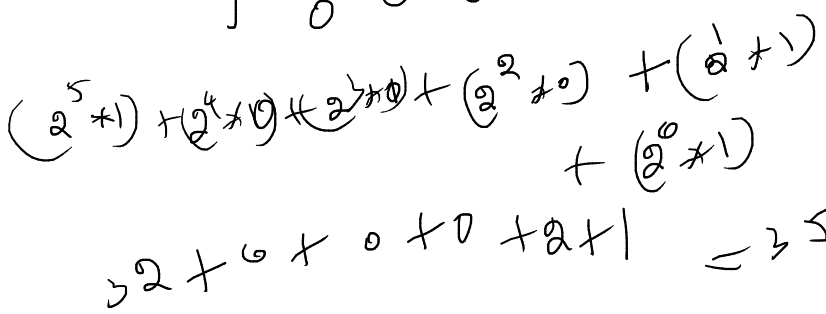




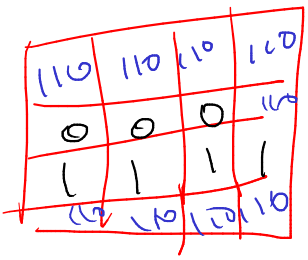
Recap
1. computer
2. 1/0 -> binary







0 → black
1 → white
110 → yellow



data stored in computer
1/0

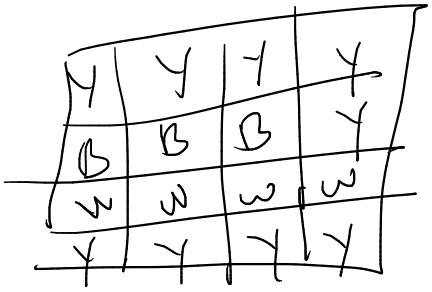
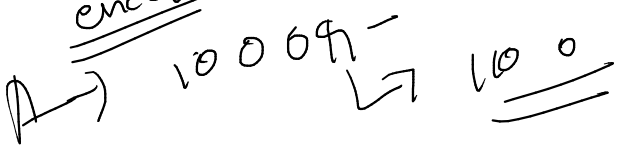
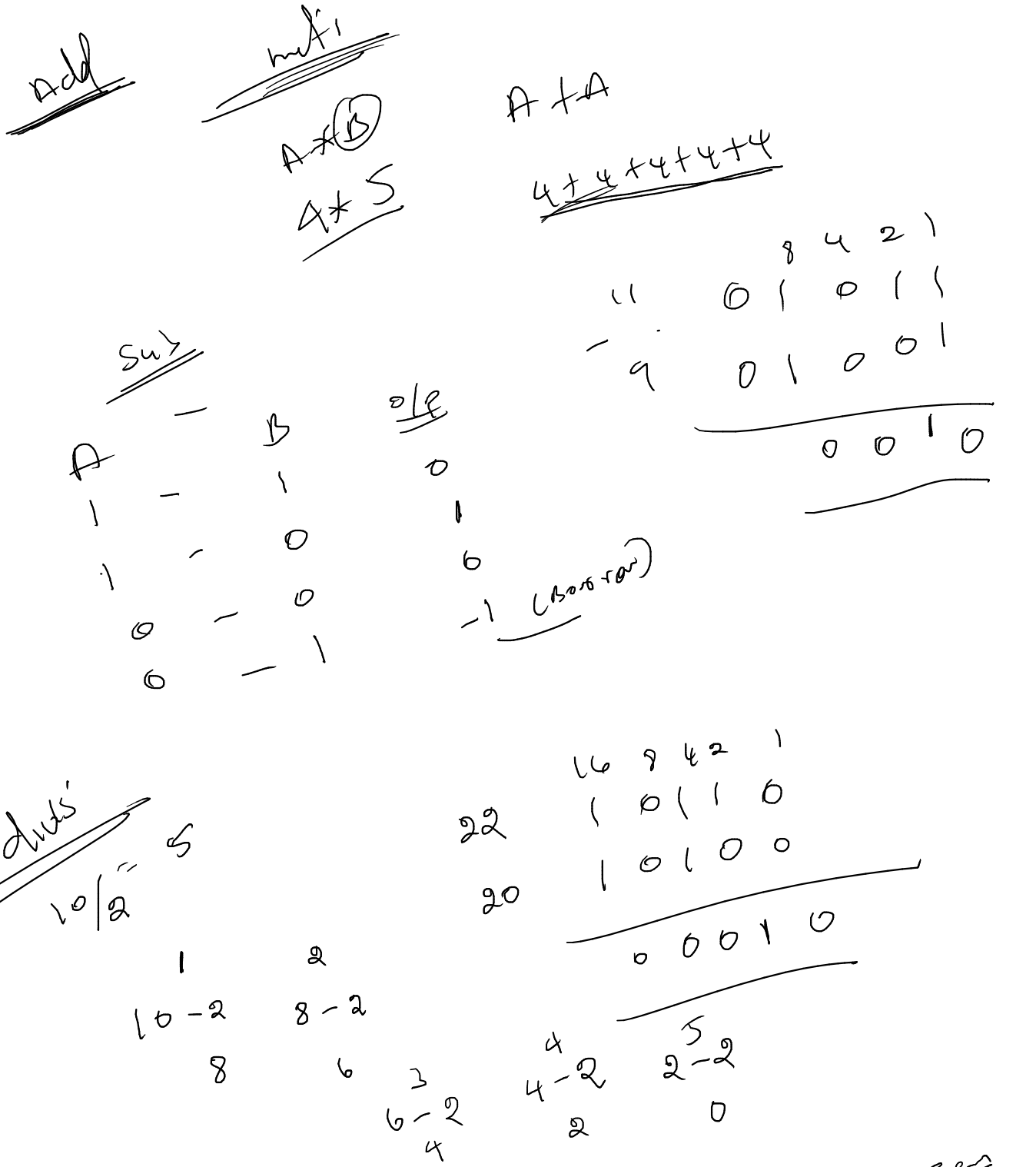


image -> 1/0

48FPS

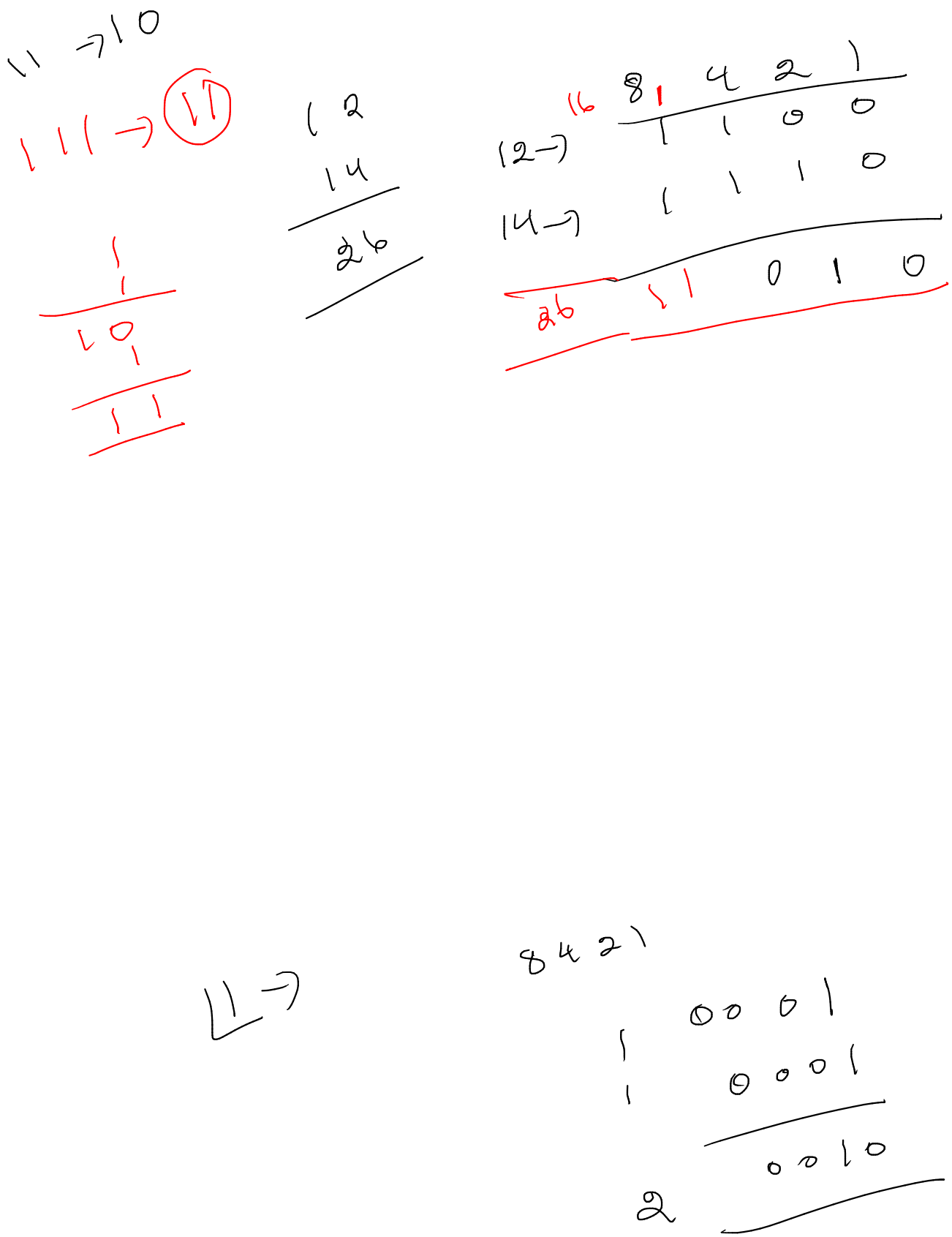
encode





addition -> adddding
subraction -> sub

multiplication -> reptive addition
division -> reptive subraction

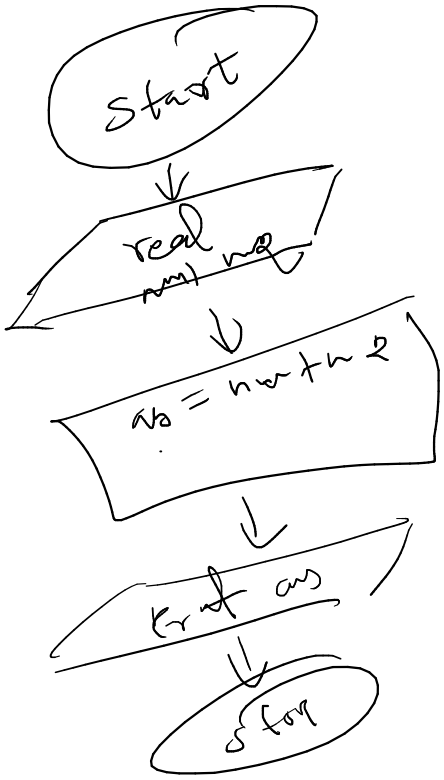


Adding two numbers

algorithm for adding two numbers

1. start
2. input num1 and num2
3. do addition and store it ans. ans = num1+num2
4. output the ans
5. stop

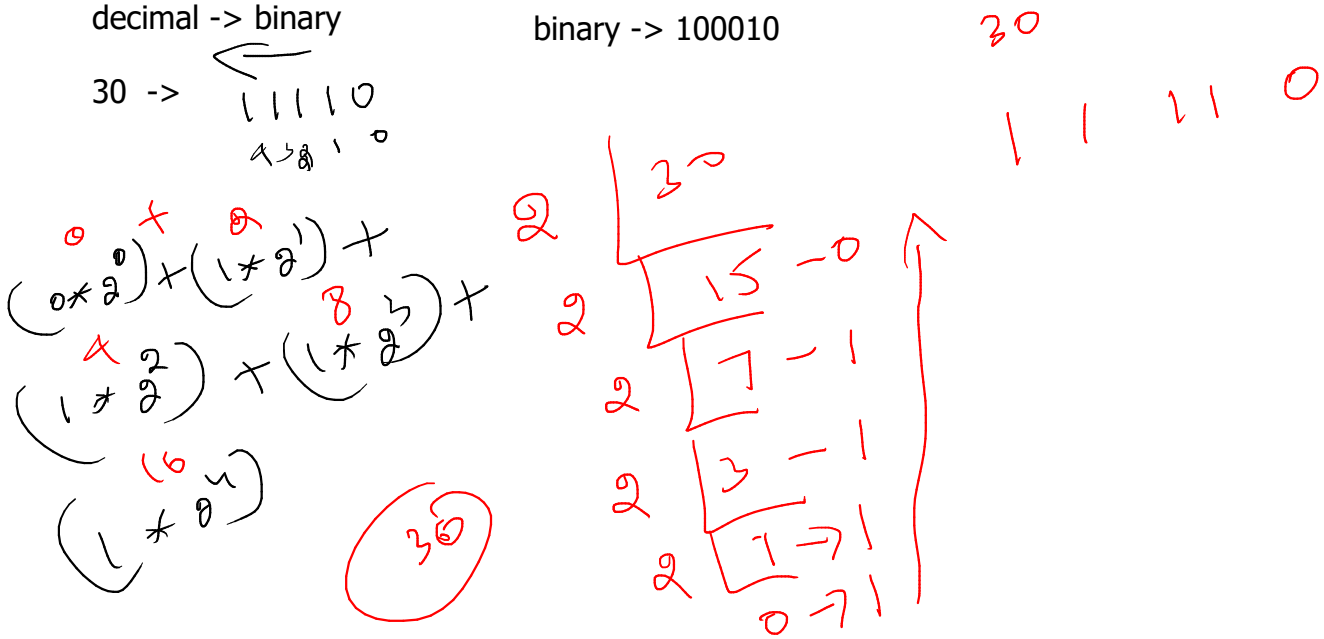
psudocode
1. start
2. input num1, num2
3. ans = num1+num2;
4. output ans
5. stop



decimal -> binary

30 -> 11110

binary -> 100010



what

1. algorithm
2. flowchart
3. psudo code

number is prime number or not?

1+2+3+4+5 => (5*6)/2

algorithm:

1. start
2. read the number
3. result = number is prime number
3. start from 2 and go till number-1 (a)
   at any point of time, if num is divisble by a then
   result = number is not prime number
4. show the result
5. stop

psudo code

1. start
2. read number
3. result = number is prime number
3. start from 2 and go till number-1 (a)
   if num is divisble by a
   result = number is not prime number
4. show the result
5. stop

steps

1. create new notepad file Main.java
2. write the code
3. save
4. javac Main.java (after executing, we got Main.class file)
5. java Main

compile

javac Main.java
java Main