computer?

calculator -> computer

computer -> 1 and 0

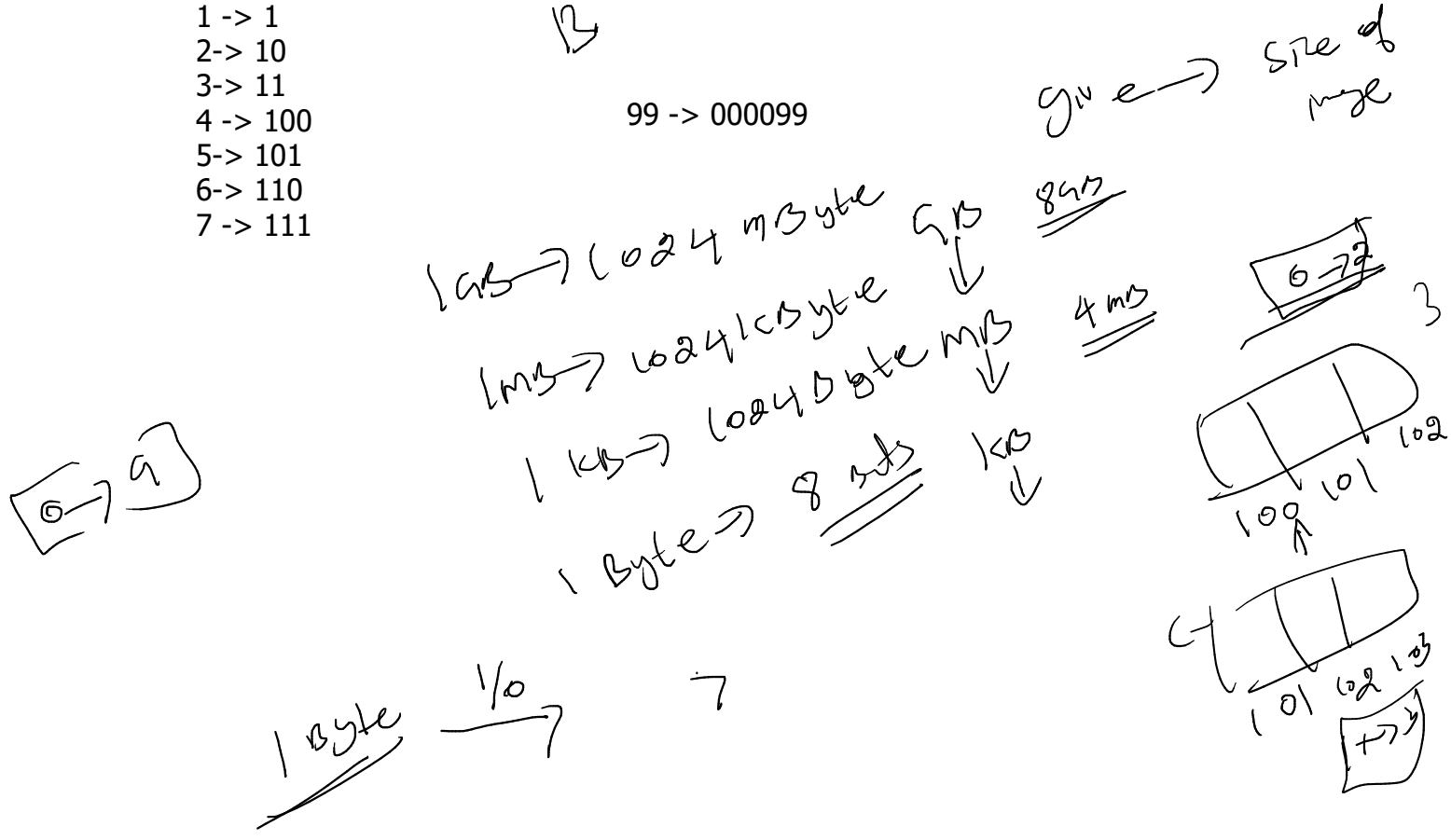
32 -> computer?

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



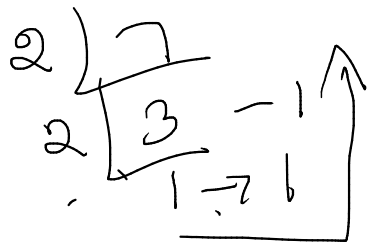
3^2

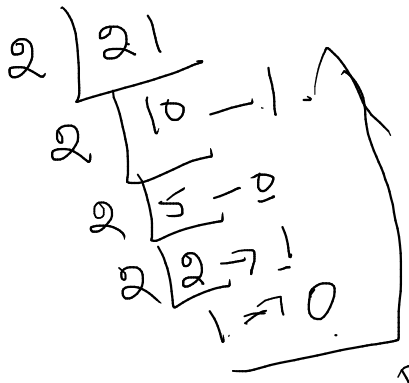
1 Byte → 8 bits

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

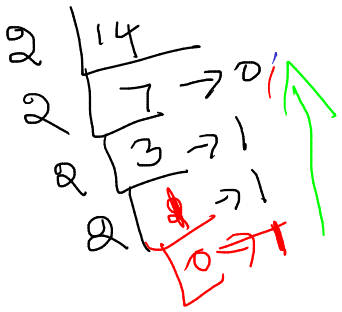
$(2^4 * 1) + (2^3 * 0) + (2^2 * 1) + (2^1 * 0) + (2^0 * 1)$

16 + 0 + 4 + 0 + 1 = 21

14

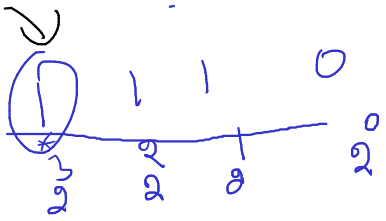
Dec → Binary

14 → 1110



1 1 1 0

Binary → Dec



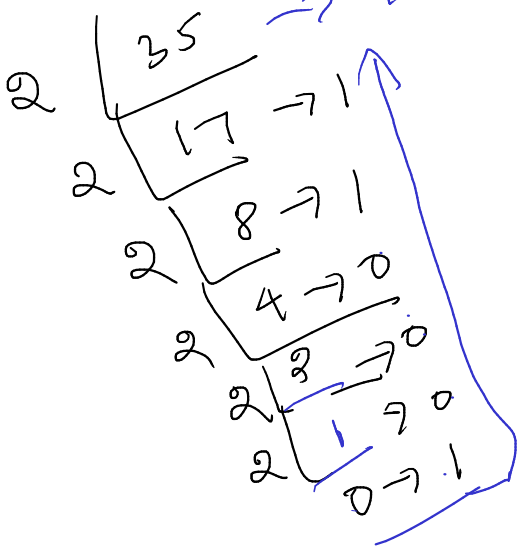
$= (2^3 * 1) + (2^2 * 1) + (2^1 * 1) + (2^0 * 0)$

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

$= 14$

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 → 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

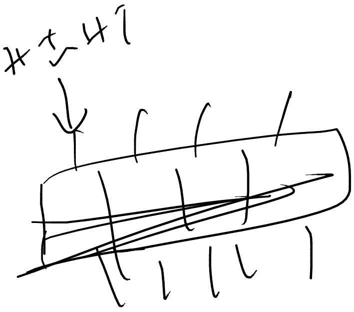
1 0

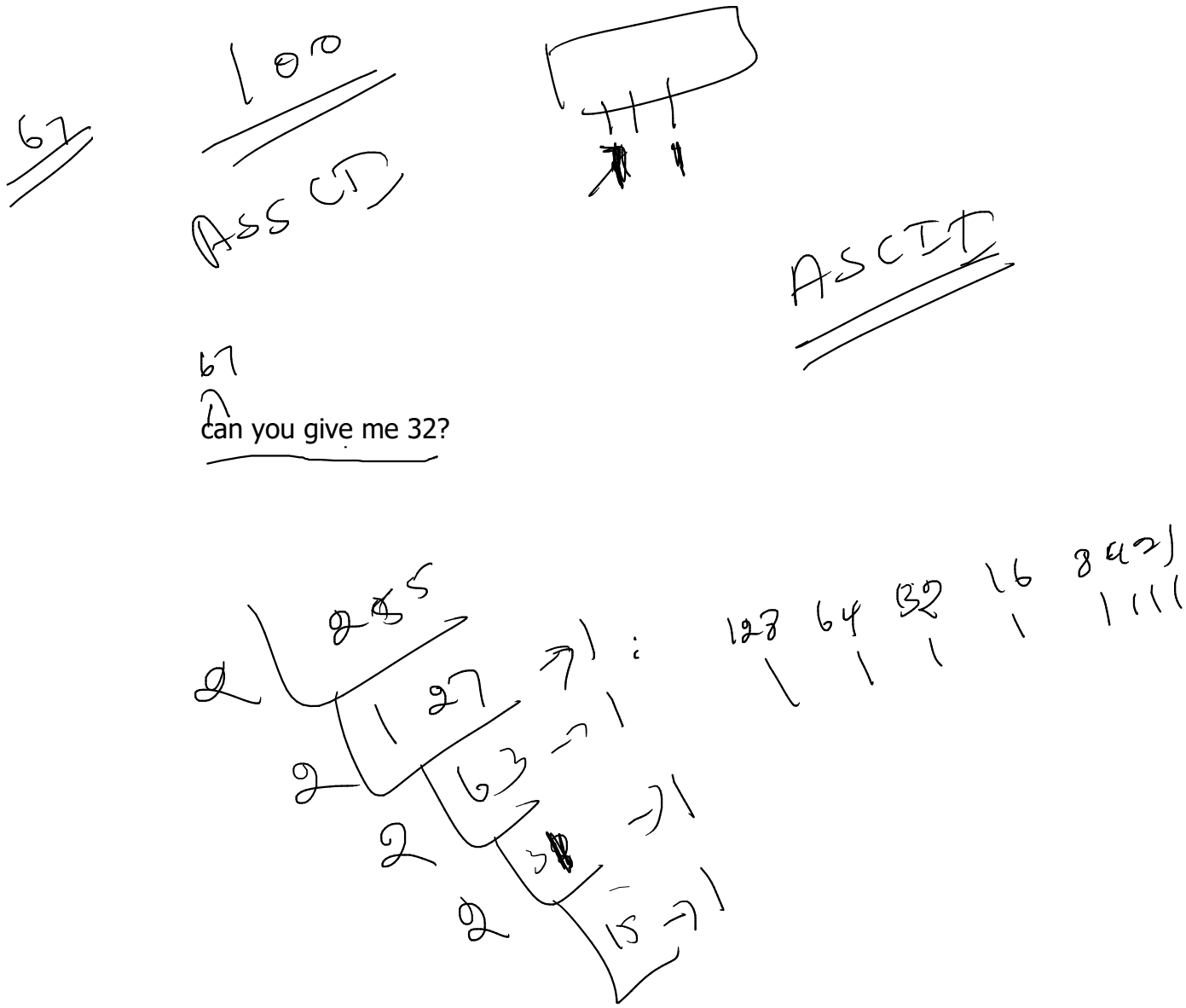
(8^1*1) 8^0*0

8

3 → 11

0 1 2 1 1 0





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