

$$(0111)_2 = (7)_{10}$$

$\downarrow \downarrow \downarrow \downarrow$
 3 2 1 0

n/t indis taken

$$2^0 + 2^1 + 2^2 = (7)_{10}$$

(1)
(2)



$$(0111)_2$$

7392

$$7 \times 10^3 + 3 \times 10^2 + 9 \times 10^1 + 2 \times 10^0$$

$$26.75 = \underbrace{1 \times 2^4} + \underbrace{1 \times 2^3} + \underbrace{0 \times 2^2} + \underbrace{1 \times 2^1} + \underbrace{0 \times 2^0} \\ + \underbrace{1 \times 2^{-1}} + \underbrace{1 \times 2^{-2}} = 26.75$$

$$(4021, 2)_5 =$$

1 1 1 1

3 2 1 0 -1

$$4 \times 5^3 + 0 \times 5^2 + 5^1 \times 2 + 5^0 \times 1$$

$$+ 5^{-1} \times 2 = (511, 4)_{10}$$

→ 0, ..., 9

$(\frac{8}{n-1})_{10}$

$$511 + (5^{-1} \times 2)$$

$$\rightarrow \frac{2}{5} = 0,4$$

(2) 511,4

$$\begin{array}{r} (127, 4)_8 \\ \begin{array}{r} 111 \\ 210 \end{array} \end{array}$$

→ 10

$$= (.87, .5)_{10}$$

$$8^{-1} \times 4 + 8^0 \times 7 + 8^1 \times 2 + 8^2 \times 1$$

$$= 87,5$$

$$(B65F)_{16} = (46\ 687)_{10}$$

$$\rightarrow \underline{11 \times 16^3} + 16^2 \times 6 + 16^1 \times 5 + 15 \times 16^0 \Rightarrow$$

$$(0ABC)_{16}$$

$$(110101)_2 = (53)_{10}$$

$$1 \text{ kb} = 1024 \text{ b}$$

$$1 \text{ k} = 2^{10} \text{ (kilo)}$$

$$1 \text{ M} = 1024 \text{ kb}$$

$$2^{20} \text{ (Mega)}$$

$$2^{30} \text{ (Giga)}$$

$$2^{40} \text{ (Tera)}$$

$$\underline{4 \text{ K}} \rightarrow 4 \times 2^{10} \\ = 2^{12}$$

$$\underbrace{16M}_{2^{20}} = \underbrace{16}_{2^4} \times 2^{20} = 2^{24}$$

$$\underbrace{4G}_{2^{30}} = 4 \times 2^{30} = 2^{32}$$

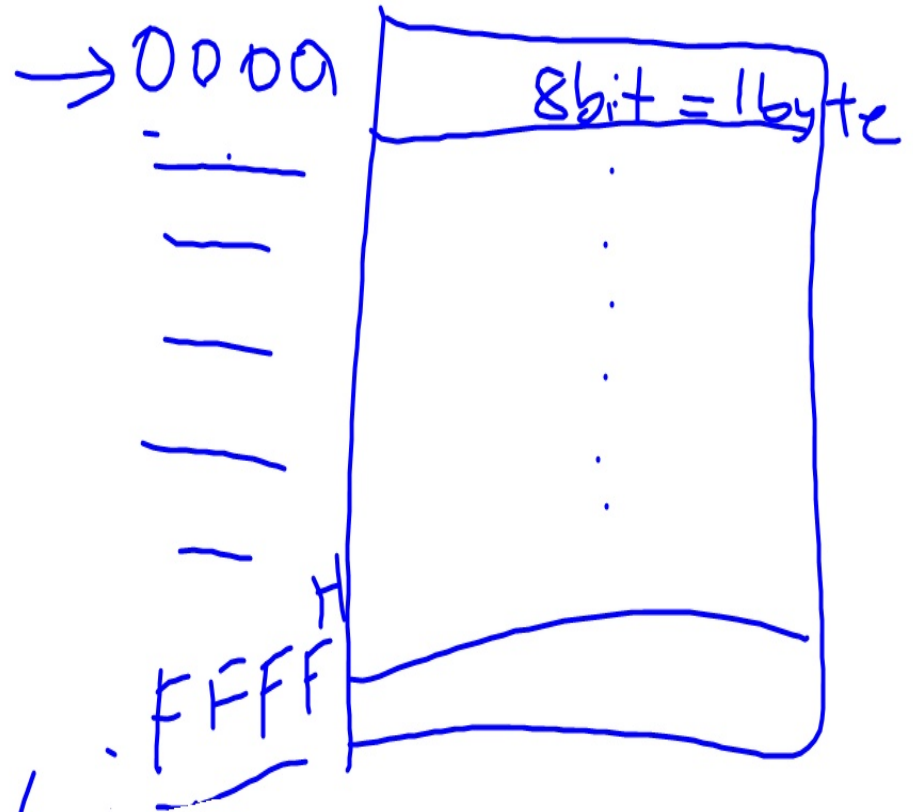
$(\text{FFFF})_{16}$

$$16^3 \times 15 + 16^2 \times 15 + 16 \times 15$$

$$1 \times 15 = \underline{05535}$$

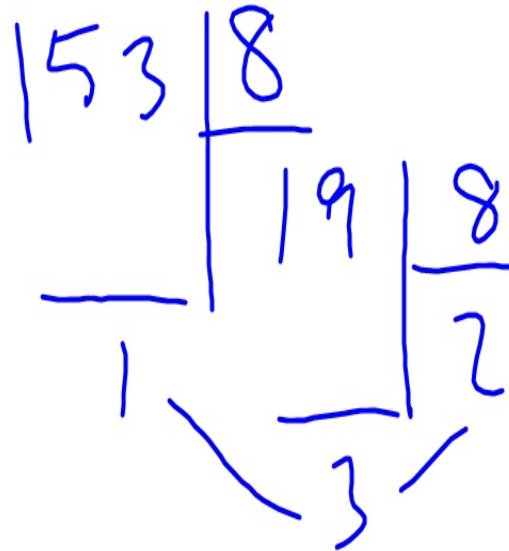
$$\underline{05536} = \underbrace{1024 \times 64}_K$$

$$= \underline{64 \text{ Kbyte}}$$



octal $\rightarrow$ 8 bit token

$(153)_{10}$



$(231)_8$

$$(135)_{10} \rightarrow (207)_8$$

10

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

2

0000

0001

0010

0011

0100

0101

0110

0111

1000

1001

1010

1011

1100

1101

8

0

1

2

3

4

5

6

7 -

10 -

11

12

13

14

15

16

16

0

$$\begin{array}{ccccccccc}
 (10\cancel{11} & 110 & 001 & 101 & 011 & , & \underbrace{111} & \underbrace{100} & \underbrace{000} & \underbrace{110})_2 \\
 2 & 6 & 1 & 5 & 3 & / & 7 & 4 & 0 & 6
 \end{array}$$

$$= (26153, \underset{\uparrow}{7}406)_8$$

tünlegen

9

$$546700 = 453299$$

1

$$1011000 = 0100111$$

$$\textcircled{10} \quad \begin{array}{r} \underline{9} \quad 10 \\ 012398 \end{array} = 987602$$

$$\textcircled{10} \quad \begin{array}{r} \underline{9} \quad 10 \\ 246700 \\ 111 \end{array} = 753200$$

(10)

3250



$$\begin{array}{r} 10000 \\ - 3250 \\ \hline \end{array}$$

155 $\leftrightarrow$ 10

$$\begin{array}{r} 1000 - 155 \\ \hline \end{array}$$

Subtraction with complements

$$\underline{72532} - \overset{10}{\underline{3250}} = ? \quad 69282 \leftarrow$$

$$\begin{array}{r} \underline{72532} - (100000 - 3250) = 169282 \\ \quad \quad \quad + 96750 \\ \hline \quad \quad \quad 169282 \\ \quad \quad \quad - 100000 \\ \hline \quad \quad \quad 69282 \end{array}$$

$$x - y = \overset{10}{x} + (10y) =$$

$$03250 - \cancel{72}532$$

$$\swarrow + 27468 = \underline{30718}$$

$$X = \underline{1010100}$$

$$(Y - X)$$

$$Y = \underline{1000011} \quad \begin{matrix} & 1 & 1 & 1 & 1 \\ & 1 & 1 & 1 & 1 \end{matrix}$$

$$a) X - Y$$

$$\begin{array}{r} X = 1000011 \\ + 0101010 \\ \hline 1101001 \end{array}$$

$$\rightarrow 1010100$$

$$+ 0111101$$

$$\hline 10010001 \rightarrow$$

$$0010001$$