

Hunter

Martin

$$\begin{array}{r} 37 \\ 2 \overline{) 75} \\ \underline{-6} \\ 15 \end{array}$$

$$\begin{array}{r} 18 \\ 2 \overline{) 37} \\ \underline{-2} \\ 17 \end{array}$$

$$\begin{array}{r} 27 \\ 2 \overline{) 55} \\ \underline{-4} \\ 15 \end{array}$$

$$\frac{75}{2} = 37 \quad R=1 \quad 001011\frac{1}{2}^5$$

$$\frac{37}{2} = 18 \quad R=1$$

$$\frac{18}{2} = 9 \quad R=1$$

$$\frac{9}{2} = 4 \quad R=1$$

$$\frac{4}{2} = 2 \quad R=1$$

$$\frac{2}{2} = 1 \quad R=0$$

$$\frac{27}{2} = 13 \quad R=1$$

$$\frac{13}{2} = 6 \quad R=1$$

$$\frac{6}{2} = 3 \quad R=1$$

$$\frac{3}{2} = 1 \quad R=1$$

$$\frac{1}{2} = 0 \quad R=1$$

① decimal \Rightarrow binary

a. $75\# = 10010111_b$

b. $111\# = 11011111_b$

② Binary \Rightarrow decimal

a. $01101000_b =$

~~64 32 16 8 4 2 1~~

$$8 + 32 + 64 = 104\# \Rightarrow$$

$$\begin{array}{r} 64 \\ -40 \\ \hline 24 \\ -16 \\ \hline 8 \\ -8 \\ \hline 0 \end{array}$$

$$2^7 + 2^5 + 2^4 = 104$$

286

b. $011111101100_b = 1024 + 512 + 256 + 128 + 64 + 32 + 8 +$

~~16 8 4 2 1~~

~~4~~

$$2,042\#$$

$$\begin{array}{r} 132 \\ -64 \\ \hline 68 \\ -32 \\ \hline 36 \\ -16 \\ \hline 20 \\ -10 \\ \hline 10 \\ -5 \\ \hline 5 \\ -2 \\ \hline 3 \end{array}$$

1024

$$\begin{array}{r} 32 \\ -16 \\ \hline 16 \\ -8 \\ \hline 8 \\ -4 \\ \hline 4 \\ -2 \\ \hline 2 \\ -1 \\ \hline 1 \end{array}$$

③ Decimal \Rightarrow Hexa

a. $131\# = X83$

b. $511\# = X1FF$

$$\frac{131}{16} = 8 \quad R=3$$

$$\frac{8}{16} = 0 \quad R=8$$

$$\frac{511}{16} = 31 \quad R=15 \quad 'F'$$

$$\frac{15}{16} = 1 \quad R=15 = 'F'$$

$$\frac{1}{16} = 0 \quad R=1$$



④ Hexa \Rightarrow decimal

④ $x 1111_{16} = [4,369 \#]$

$$16^0 \cdot 1 = 1$$

$$4096 + 256 + 16 + 1 = 4,369$$

$$16^1 \cdot 1 = 16$$

$$16^2 \cdot 1 = 256$$

$$16^3 \cdot 1 = 4096$$

⑤ $x 1000_{16} = [3,072 \#]$

$$16^0 \cdot 13 = 13$$

$$16^1 \cdot 0 = 0$$

$$5,072 + 13 =$$

$$16^2 \cdot 12 = 3,072$$

⑤

Binary \Rightarrow hexa

⑥ $100111011000_{2} = [XSDA]$

$$\begin{array}{ccc} 5 & 15 & 10 \\ 5 & '0' & 'A' \end{array}$$

⑥ $111011101100_{2} = [XEBC]$

$$\begin{array}{ccc} 14 & 14 & 12 \\ 'E' & 'E' & 'C' \end{array}$$

⑥ Hexa \Rightarrow binary $\frac{5}{2} = 2 \ r = 1 \quad \frac{2}{2} = 1 \ r = 0$

⑥ $x S24 = \frac{7}{2} = 1 \ r = 0 \quad \frac{1}{2} = 0 \ r = 1$

$010100100100_b \quad \frac{1}{2} = 0 \ r = 1 \quad \frac{0}{2} = 0 \ r = 0$

$\frac{0}{2} = 0 \ r = 0 \quad \frac{0}{2} = 0 \ r = 0$

$\frac{0}{2} = 2 \ r = 0 \quad \frac{1}{2} = 0 \ r = 1$

$\frac{1}{2} = 1 \ r = 0 \quad \frac{0}{2} = 0 \ r = 0$

$$n' = 12$$

b) XCFES =

1100 11100101b,

$$\frac{12}{2} = 6 \quad R=0$$

$$\frac{14}{2} = 7 \quad R=0$$

$$\frac{6}{2} = 3 \quad R=0$$

$$\frac{7}{2} = 3 \quad R=1$$

$$\frac{3}{2} = 1 \quad R=1$$

$$\frac{3}{2} = 1 \quad R=1$$

$$\frac{1}{2} = 0 \quad R=1 \quad \frac{1}{2} = 0 \quad R=1$$

$$\frac{5}{2} = 2 \quad R=1$$

$$\frac{3}{2} = 1 \quad R=0$$

$$\frac{1}{2} = 0 \quad R=1$$

$$\frac{1}{2} = 0 \quad R=0$$

1100 11100101