①

	BIN	DEC	HEX
1	1010000	80	50
2	1111000	120	78
3	111101	61	3D
4	1101	13	D
5	10010110	150	96
6	10100100101	1296	515
7	101111111001100000 1011010	12529754	BF305A

① BIN-DEC

$1010000_2 = 2^0.0 + 2^1.0 + 2^2.0 + 2^3.0 + 2^4.1 + 2^5.0 + 2^6.1$

$1010000_2 = 80_{10}$

BIN-HEX

$\underbrace{0101}_{5}\underbrace{0000}_{0} = 50_{16}$

② DEC - BIN

```
120 |2
  60 |2
0/↘ 30 |2
   0/↘ 15 |2
      0/↘ 7 |2
         1/↘ 3 |2
            1/↘ 1
               1/↗
```

$120_{10} = 1111000_2$

BIN - HEX

$\underbrace{0111}_{7}\underbrace{1000}_{8} = 78_{16}$

③ HEX - DEC

$$3D_{16} = 13 \cdot 16^0 + 3 \cdot 16^1 = 61_{10}$$

DEC - BIN

$$61 \underline{|2}$$
$$30 \underline{|2}$$
$$1 \swarrow \quad 15 \underline{|2}$$
$$0 \swarrow \quad 7 \underline{|2}$$
$$1 \swarrow \quad 3 \underline{|2}$$
$$1 \swarrow \quad 1$$
$$1 \nearrow$$

$$61 = 111101_2$$

④ BIN - DEC

$$1101_2 = 2^0 \cdot 1 + 2^1 \cdot 0 + 2^2 \cdot 1 + 2^3 \cdot 1 = 13_{10}$$

DEC - HEX

$$13_{10} = D_{16}$$

⑤ HEX - DEC

$$96_{16} = 16^1 \cdot 9 + 16^0 \cdot 6 = 150_{10}$$

DEC - BIN

$$150 \underline{|2}$$
$$75 \underline{|2}$$
$$0 \swarrow \quad 37 \underline{|2}$$
$$1 \swarrow \quad 18 \underline{|2}$$
$$1 \swarrow \quad 9 \underline{|2}$$
$$0 \swarrow \quad 4 \underline{|2}$$
$$1 \swarrow \quad 2 \underline{|2}$$
$$0 \swarrow \quad 1$$
$$0 \nearrow$$

$$150_{10} = 10010110_2$$

6) BIN - HEX

$$\underbrace{0101}_{5}\,\underbrace{0010}_{1}\,\underbrace{0101}_{5}{}_2 = 515_{16}$$

HEX - DEC

$$515_{16} = 5 \cdot 16^2 + 1 \cdot 16^1 + 5 \cdot 16^0 = 1296_{10}$$

7) HEX - BIN

$$\overset{B}{1011}\;\overset{F}{1111}\;\overset{3}{0011}\;\overset{0}{0000}\;\overset{5}{0101}\;\overset{A}{1010}$$

$$BF305A_{16} = 101111110011000001011010_2$$

HEX - DEC

$$BF305A_{16} = 11 \cdot 16^5 + 15 \cdot 16^4 + 3 \cdot 16^3 + 0 \cdot 16^2 + 5 \cdot 16^1 + 10 \cdot 16^0$$

$$BF305A_{10} = 12529754_{10}$$

2)

```
   1010          1001        ¹¹1110    ¹10110
 + 0101        + 0110      + 1010    + 10101
   1111₂         1111₂       110010₂  101011₂
```

```
  ¹¹¹11011       7354₁₆      F1E5      3231
 + 00110       + 1123₁₆    + ABC1    + 2123
  100001         9477       19DA6     5354₁₆
```

③

$$\begin{array}{r} \overset{0\ 1\ 1\ 0\ 1}{10110} \\ -\ 1101 \\ \hline 1001 \end{array} \qquad \begin{array}{r} 10\overset{1}{1}01 \\ -\ 10011 \\ \hline 00010 \end{array} \qquad \begin{array}{r} 11\overset{1}{0}10 \\ -\ 10111 \\ \hline 10011 \end{array} \qquad \begin{array}{r} \overset{1\ 1}{F91F} \\ -\ 0101 \\ \hline F81E \end{array}$$

$$\begin{array}{r} 0\overset{16}{8}\overset{8\ 2\ 16}{8}4 \\ -\ 0137 \\ \hline 017D \end{array} \qquad \begin{array}{r} 1060 \\ -\ 1776 \\ \hline F8EA \end{array}$$

④

	SYM	A1	A2	B
000	0	0	0	0
001	1	1	1	1
010	2	2	2	2
011	3	3	3	3
100	-0	-3	-4	4
101	-1	-2	-3	5
110	-2	-1	-2	6
111	-3	0	-1	7

⑤

	SYM	CA1	CA2
0000	0	0	0
0001	1	1	1
0010	2	2	2
0011	3	3	3
0100	4	4	4
0101	5	5	5
0110	6	6	6
0111	7	7	7
1000	-0	-7	-8
1001	-1	-6	-7
1010	-2	-5	-6
1011	-3	-4	-5
1100	-4	-3	-4
1101	-5	-2	-3
1110	-6	-1	-2
1111	-7	-0	-1