

①

$$12345678_{10} \rightarrow X_{16}$$

①.1.

$$\begin{array}{r}
 12345678 \mid 16 \\
 - 12345664 \\
 \hline
 14 \\
 \hline
 771604 \mid 16 \\
 - 771600 \\
 \hline
 4 \\
 \hline
 48225 \mid 16 \\
 - 48224 \\
 \hline
 1 \\
 \hline
 3014 \mid 16 \\
 - 3008 \\
 \hline
 6 \\
 \hline
 188 \mid 16 \\
 - 176 \\
 \hline
 12 \\
 \hline
 11 \mid 16 \\
 - 11 \\
 \hline
 0
 \end{array}$$

$$12345678_{10} = \mathbf{BC614E}_{16}$$

①.2.

$$10000000_{10} \rightarrow X_{16}$$

$$\begin{array}{r}
 10000000 \mid 16 \\
 - 10000000 \\
 \hline
 0 \\
 \hline
 62500 \mid 16 \\
 - 62496 \\
 \hline
 4 \\
 \hline
 3906 \mid 16 \\
 - 3904 \\
 \hline
 2 \\
 \hline
 244 \mid 16 \\
 - 240 \\
 \hline
 4 \\
 \hline
 15 \mid 16 \\
 - 15 \\
 \hline
 0
 \end{array}$$

$$10000000_{10} = \mathbf{F4240}_{16}$$

(2.)

(2.1.)

$$\begin{aligned} 12345678_{16} &= 1 \cdot 16^7 + 2 \cdot 16^6 + 3 \cdot 16^5 + 4 \cdot 16^4 + \\ &+ 5 \cdot 16^3 + 6 \cdot 16^2 + 7 \cdot 16^1 + 8 \cdot 16^0 \\ &= 305419896_{10} \end{aligned}$$

(2.2.)

$$1000000_{16} = 1 \cdot 16^6 = 16777216$$

③ A - cыгy. нoвoкo

B - мeд

C - xaeд

A ∨ ∨ B ∨ ∨ !C

④ $A \rightarrow B = !A \vee B$

④.1

A	B	$A \rightarrow B$
0	0	1
0	1	1
1	0	0
1	1	1

A	B	!A	$!A \vee B$
0	0	1	1
0	1	1	1
1	0	0	0
1	1	0	1

4.2.

$$A \leftrightarrow B = (A \wedge B) \vee (\neg A \wedge \neg B)$$

$A \leftrightarrow B$:

A	B	$A \leftrightarrow B$
0	0	1
0	1	0
1	0	0
1	1	1

A	B	$\neg A$	$\neg B$	$A \wedge B$	$\neg A \wedge \neg B$	$(A \wedge B) \vee (\neg A \wedge \neg B)$
0	0	1	1	0	1	1
0	1	1	0	0	0	0
1	0	0	1	0	0	0
1	1	0	0	1	0	1

⑥

$$X = (B \rightarrow A) \cdot (\overline{A+B}) \cdot (A \rightarrow C) =$$

$$= (\overline{B} + A) \cdot (\overline{A} \cdot \overline{B}) \cdot (\overline{A} + C) =$$

$$= (\overline{B}\overline{A} + A\overline{A}) \cdot \overline{B}(\overline{A} + C) =$$

$$= \overline{B}\overline{A} \cdot \overline{B}(\overline{A} + C) = \overline{B}\overline{A}(\overline{A} + C) = \overline{B} \cdot \overline{A} \cdot \overline{A} + \overline{B} \cdot \overline{A} \cdot C =$$

$$= \overline{B} \cdot \overline{A} + \overline{B}\overline{A}C = \overline{B} \cdot \overline{A} \underbrace{(1+C)}_1 = \boxed{\overline{B} \cdot \overline{A}}$$