Zap. 1

A) DEC → BIN

- $98_{(10)} = 1100010_{(2)}$

64	32	16	8	4	2	1
1	1	0	0	0	1	0

- $56_{(10)} = 111000_{(2)}$

32	16	8	4	2	1
1	1	1	0	0	0

- $31_{(10)} = 11111_{(2)}$

16	8	4	2	1
1	1	1	1	1

- $32_{(10)} = 100000_{(2)}$
- $2_{(10)} = 10_{(2)}$
- $1000_{(10)} = 1111101000_{(2)}$

512	256	128	64	32	16	8	4	2	1
1	1	1	1	1	0	1	0	0	0

- $111_{(10)} = 1101111_{(2)}$

64	32	16	8	4	2	1
1	1	0	1	1	1	1

- $45_{(10)} = 101101_{(2)}$

32	16	8	4	2	1
1	0	1	1	0	1

- $14825_{(10)} = 11100111101001_{(2)}$

8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
1	1	1	0	0	1	1	1	1	0	1	0	0	1

B) BIN → DEC

$10_{(2)} = 2_{(10)}$

$11101_{(2)} = 16+8+4+1 = 29_{(10)}$

$1111_{(2)} = 8+4+2+1 = 15_{(10)}$

$11110_{(2)} = 16+8+4+2 = 30_{(10)}$

$11011_{(2)} = 16+8+2+1 = 27_{(10)}$

$1001_{(2)} = 8+1 = 9_{(10)}$

$1110111_{(2)} = 64+32+16+4+2+1 = 119_{(10)}$

$11001100_{(2)} = 128+64+8+4 = 204_{(10)}$

$1010101010_{(2)} = 512+128+32+8+2 = 682_{(10)}$

C) DEC → HEX

- $48_{(10)} = 30_{(16)}$

- $156_{(10)} : 16 = 9$ (ocm 12)
  -144
  12 : 16 =
  $9 : 16 = 0$ (ocm 9)
  $156_{(10)} = 9C_{(16)}$

- $321_{(10)} : 16 = 20$ (ocm. 1)
  $20 : 16 = 1$ (ocm. 4)
  $1 : 16 = 0$ (ocm. 1)
  $321_{(10)} = 141_{(16)}$

- $255_{(10)} : 16 = 15$ (ocm. 15)
  $15 : 16 = 0$ (ocm. 15)
  $255_{(10)} = FF_{(16)}$

- $1024_{(10)} : 16 = 64$ (ocm. 0)
  $64 : 16 = 4$ (ocm. 0)
  $4 : 16 = 0$ (ocm. 4)
  $1024_{(10)} = 400_{(16)}$

- $8_{(10)} = 8_{(16)}$

- $100_{(10)} : 16 = 6$ (ocm. 4)
  $6 : 16 = 0$ (ocm. 6)
  $100_{(10)} = 64_{(16)}$

- $14567_{(10)} : 16 = 910$ (ocm. 7)
  144
  16
  $910_{(10)} : 16 = 56$ (ocm. 14)
  10
  10
  $56 : 16 = 3$ (ocm. 8)
  $3 : 16 = 0$ (ocm. 3)
  $14567_{(10)} = 38E7$

- $2020_{(10)} : 16 = 126$ (ocm. 4)
  $126 : 16 = 7$ (ocm. 14)
  $7 : 16 = 0$ (ocm. 7)
  $2020_{(10)} = 7E4$

D) HEX → DEC

$A_{(16)} = 10_{(10)}$

$100_{(16)} = 256_{(10)}$

$3E_{(16)} = 16 \cdot 3 + 1 \cdot 14 = 48 + 14 = 62_{(10)}$

$1EA_{(16)} = 256 + 14 \cdot 16 + 10 = 256 + 224 + 10 = 490_{(10)}$

$ADC_{(16)} = 2560 + 16 \cdot 11 + 12 = 2748_{(10)}$

$EF_{(16)} = 16 \cdot 14 + 15 = 224 + 15 = 239_{(10)}$

$5B3_{(16)} = 256 \cdot 5 + 16 \cdot 11 + 3 = 1280 + 176 + 3 = 1459_{(10)}$

$14C_{(16)} = 256 + 4 \cdot 16 + 12 = 256 + 64 + 12 = 332$

$2A2D_{(16)} = 2 \cdot 4096 + 256 \cdot 10 + 16 \cdot 2 + 13 = 8192 + 2560 + 32 + 13 = 10795_{(10)}$

E) HEX → BIN

$B_{(16)} = 1011_{(2)}$

$200_{(16)} = 10\,0000\,0000_{(2)}$

$3E_{(16)} = 11\,1110_{(2)}$

$1EA_{(16)} = 1\,1110\,1010_{(2)}$

$CAB_{(16)} = 1100\,1010\,1011_{(2)}$

$ED_{(16)} = 1110\,1101_{(2)}$

$3B3_{(16)} = 0011\,1011\,0011_{(2)}$

$24C_{(16)} = 0010\,0100\,1100_{(2)}$

$3A2D_{(16)} = 0011\,1010\,0010\,1101$

0 0 0 0	0	0
0 0 0 1	1	1
0 0 1 0	2	2
0 0 1 1	3	3
0 1 0 0	4	4
0 1 0 1	5	5
0 1 1 0	6	6
0 1 1 1	7	7
1 0 0 0	8	8
1 0 0 1	9	9
1 0 1 0	10	A
1 0 1 1	11	B
1 1 0 0	12	C
1 1 0 1	13	D
1 1 1 0	14	E
1 1 1 1	15	F

f) BIN → HEX

$110_{(2)} = 6_{(16)}$

$1101|101_{(2)} = 65_{(16)}$

$11|0011_{(2)} = 33_{(16)}$

$1|0111|0110_{(2)} = 176_{(16)}$

$1011_{(2)} = B_{(16)}$

$11|1101_{(2)} = 3D_{(16)}$

$1100|1011_{(2)} = CB_{(16)}$

6) DEC → OCT

- $8_{(10)} = 10_{(8)}$
- $56_{(10)} : 8 = 7 \quad (0)$
  $7 : 8 = 0 \quad (7)$
  $56_{(10)} = 70_{(8)}$
- $31_{(10)} : 8 = 3 \quad (7)$
  $3 : 8 = 0 \quad (3)$
  $31_{(10)} = 37_{(8)}$
- $7_{(10)} = 7_{(8)}$
- $2_{(10)} = 2_{(8)}$
- $1000_{(10)} : 8 = 125 \quad (0)$
  $125 : 8 = 15 \quad (5)$
  $15 : 8 = 1 \quad (7)$
  $1 : 8 = 0 \quad (1)$
  $1000_{(10)} = 1750_{(8)}$
- $111_{(10)} : 8 = 13 \quad (7)$
  $13 : 8 = 1 \quad (5)$
  $1 : 8 = 0 \quad (1)$
  $111_{(10)} = 157_{(8)}$
- $45_{(10)} : 8 = 5 \quad (0 \text{ cm. } 5)$
  $5 : 8 = 0 \quad (\text{cm. } 5)$
  $45_{(10)} = 55_{(8)}$
- $14825_{(10)} : 8 = 1853 \quad (1)$
  $1853 : 8 = 231 \quad (5)$
  $231 : 8 = 28 \quad (7)$
  $28 : 8 = 3 \quad (4)$
  $3 : 8 = 0 \quad (3)$
  $14825_{(10)} = 34751_{(8)}$

4) OCT → DEC

$25_{(8)} = 2 \cdot 8 + 5 = 21_{(10)}$

$10_{(8)} = 8_{(10)}$

$24_{(8)} = 16 + 4 = 20_{(10)}$

$7_{(8)} = 7$

$2_{(8)} = 2$

$621_{(8)} = 64 \cdot 6 + 8 \cdot 2 + 1 = 401_{(10)}$

$45_{(8)} = 8 \cdot 4 + 5 = 37_{(10)}$

$34_{(8)} = 8 \cdot 3 + 4 = 28_{(10}$

$5423_{(8)} = 512 \cdot 5 + 64 \cdot 4 + 8 \cdot 2 + 3 = 2560 + 256 + 19 = 2835_{(10)}$

I) Тройна БС → Четворична БС

- $120_{(3)} = 9+6 = 15_{(10)} = 33_{(4)}$

  $15_{(10)} : 4 = 3$ (3)
  $3 : 4 = 0$ (3)

- $10_{(3)} = 3_{(10)} = 3_{(4)}$

- $21_{(3)} = 7_{(10)} = 13_{(4)}$

  $7 : 4 = 1$ (3)
  $1 : 4 = 0$ (1)

- $2110_{(3)} = 66_{(10)} = 1002_{(4)}$

  $66 : 4 = 16$ (2)
  $16 : 4 = 4$ (0)
  $4 : 4 = 1$ (0)
  $1 : 4 = 0$ (1)

- $112_{(3)} = 14_{(10)} = 32_{(4)}$

  $14 : 4 = 3$ (2)
  $3 : 4 = 0$ (3)

- $11221_{(3)} = 243+81+27+18+6+1 = 376_{(10)} = 11320_{(4)}$

  $376 : 4 = 94$ (0)
  $94 : 4 = 23$ (2)
  $23 : 4 = 5$ (3)
  $5 : 4 = 1$ (1)
  $1 : 4 = 0$ (1)

- $100_{(3)} = 9_{(10)} = 21_{(4)}$

  $9 : 4 = 2$ (1)
  $2 : 4 = 0$ (2)

- $110_{(3)} = 12_{(10)} = 30_{(4)}$

  $12 : 4 = 3$ (0)
  $3 : 4 = 0$ (3)

- $11001_{(3)} = 81+27+1 = 109_{(10)} = 1231_{(4)}$

  $109 : 4 = 27$ (1)
  $27 : 4 = 6$ (3)
  $6 : 4 = 1$ (2)
  $1 : 4 = 0$ (1)