BCD ubah ke biner dan sebaliknya

1. Konversikan ke basis bilangan yang ditentukan

A. $10011.101_{(2)} = ..._{(10)} = ..._{(8)} = ..._{(16)}$

$10011.101_{(2)}$

$(1 \times 2^4) + (0 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0) + (1 \times 2^{-1}) + (0 \times 2^{-2}) +$
$(1 \times 2^{-3}) = 16 + 0 + 0 + 2 + 1 + 0 + 0 + 0.625 = 19.625_{(10)}$

$010011.101_{(2)}$

010	011	.	101
2	3	.	5

$23.5_{(8)}$

$0001\ 0011.1010_{(2)}$

0001	0011	.	1010
1	3	.	A

$13.A_{(16)}$

B. $DA3.CA_{(16)} = ..._{(10)} = ..._{(8)} = ..._{(2)}$

$(13 \times 16^2) + (10 \times 16^1) + (3 \times 16^0) + (12 \times 16^{-1}) + (10 \times 16^{-2})$
$= 3491.7890625_{(10)}$

$DA3.CA_{(16)}$

D	A	3	.	C	A
1101	1010	0011	.	1100	1010

$110110100011.1100101_{(2)}$

110 110 100 011 . 110 010 $100_{(2)}$

110	110	100	011	.	110	010	100
6	6	4	3	.	6	2	4

$6643.624_{(8)}$

C. $36.54_{(10)}$ = ...$_{(2)}$ = ...$_{(8)}$ = ...$_{(16)}$

36 : 2 = 18 sisa 0	0.54 x 2 = 1.08 ambil 1
18 : 2 = 9 sisa 0	0.08 x 2 = 0.16 ambil 0
9 : 2 = 4 sisa 1	0.16 x 2 = 0.32 ambil 0
4 : 2 = 2 sisa 0	0.32 x 2 = 0.64 ambil 0
2 : 2 = 1 sisa 0	0.64 x 2 = 1.28 ambil 1
1 : 2 = 0 sisa 1	0.28 x 2 = 0.56 ambil 0
	0.56 x 2 = 1.12 ambil 1

$100100.1000101_{(2)}$ = $36.539..._{(10)}$ = $36.54_{(10)}$

100 100 . 100 010 $100_{(2)}$

100	100	.	100	010	100
4	4	.	4	2	4

$44.424_{(8)}$

0010 0100 . 1000 $1010_{(2)}$

0010	0100	.	1000	1010
2	4	.	8	A

$24.8A_{(16)}$

D. $52.16_{(8)} = \ldots_{(10)} = \ldots_{(2)} = \ldots_{(16)}$

$(5 \times 8^{1}) + (2 \times 8^{0}) + (1 \times 8^{-1}) + (6 \times 8^{-2}) = 40 + 2 + (1/8) + (6/64)$

$= 42.21875_{(10)}$

$52.16_{(8)}$

5	2	.	1	6
101	010	.	001	110

$101010.00111_{(2)}$

$0010\ 1010\ .\ 0011\ 1000_{(2)}$

0010	1010	.	0011	1000
2	A	.	3	8

$2A.38_{(16)}$

2. Bilangan BCD 100101000001 ubah ke biner!

Jawab :

$1001\ 0100\ 0001_{(BCD)}$

1001	0100	0001
9	4	1

$941_{(10)}$

941 : 2 = 470 sisa 1
470 : 2 = 235 sisa 0
235 : 2 = 117 sisa 1
117 : 2 = 58 sisa 1
58 : 2 = 29 sisa 0
29 : 2 = 14 sisa 1
14 : 2 = 7 sisa 0
7 : 2 = 3 sisa 1
3 : 2 = 1 sisa 1
1 : 2 = 0 sisa 1

$1110101101_{(2)}$

3. Bilangan biner 10101101 ubah ke BCD!

Jawab :

$10101101_{(2)}$

$(1 \times 2^7) + (0 \times 2^6) + (1 \times 2^5) + (0 \times 2^4) + (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0)$

$=128 + 0 + 32 + 0 + 8 + 4 + 0 + 1$

$=173_{(10)}$

1	7	3
0001	0111	0011

$000101110011_{(BCD)}$