Esercizi conversione da binario a decimale

1)

$(101110)_2 = 1 \cdot 2^5 + 0 \cdot 2^4 + 1 \cdot 2^3 + 1 \cdot 2^2 + 1 \cdot 2^1 + 0 \cdot 2^0 = 1 \cdot 32 + 0 \cdot 16 + 1 \cdot 8 + 1 \cdot 4 + 1 \cdot 2 + 0 \cdot 1 = 32 + 0 + 8 + 4 + 2 + 0 = 46$

$(101110)_2 = (46)_{10}$

2)

$(100001)_2 = 1 \cdot 2^5 + 0 \cdot 2^4 + 0 \cdot 2^3 + 0 \cdot 2^2 + 0 \cdot 2^1 + 1 \cdot 2^0 = 1 \cdot 32 + 0 \cdot 16 + 0 \cdot 8 + 0 \cdot 4 + 0 \cdot 2 + 1 \cdot 1 = 32 + 0 + 0 + 0 + 0 + 1 = 33$

$(100001)_2 = (33)_{10}$

3)

$(111100)_2 = 1 \cdot 2^5 + 1 \cdot 2^4 + 1 \cdot 2^3 + 1 \cdot 2^2 + 0 \cdot 2^1 + 0 \cdot 2^0 = 1 \cdot 32 + 1 \cdot 16 + 1 \cdot 8 + 1 \cdot 4 + 0 \cdot 2 + 0 \cdot 1 = 32 + 16 + 8 + 4 + 0 + 0 = 60$

$(111100)_2 = (60)_{10}$

4)

$(1010000000)_2 = 1 \cdot 2^9 + 0 \cdot 2^8 + 1 \cdot 2^7 + 0 \cdot 2^6 + 0 \cdot 2^5 + 0 \cdot 2^4 + 0 \cdot 2^3 + 0 \cdot 2^2 + 0 \cdot 2^1 + 0 \cdot 2^0 = 1 \cdot 512 + 0 \cdot 256 + 1 \cdot 128 + 0 \cdot 64 + 0 \cdot 32 + 0 \cdot 16 + 0 \cdot 8 + 0 \cdot 4 + 0 \cdot 2 + 0 \cdot 1 = 512 + 0 + 128 + 0 + 0 + 0 + 0 + 0 + 0 + 0 = 640$

$(1010000000)_2 = (640)_{10}$

$x = 640$

Esercizi conversione da decimale a binario

1.

quoziente	resto
280	
140	0
70	0
35	0
17	1
8	1
4	0
2	0
1	0
0	1

$(280)_{10} = (100011000)_2$

$x = 100011000$

2.

quoziente	resto
341	
170	1
85	0
42	1
21	0
10	1
5	0
2	1
1	0
0	1

$(341)_{10} = (101010101)_2$

$x = 101010101$

3.

quoziente	resto
477	
238	1
119	0
59	1
29	1
14	1
7	0
3	1
1	1
0	1

$(477)_{10} = (111011101)_2$

$x = 111011101$

6.

quoziente	resto
788	
394	0
197	0
98	1
49	0
24	1
12	0
6	0
3	0
1	1
0	1

$(788)_{10} = (1100010100)_2$

$x = 1100010100$

Esercizi conversione da binario a ottale

1)

base 2	101	010	011
base 8	5	2	3

$(101010011)_2 = (523)_8$

$x = 523$

2)

base 2	001	001	100
base 8	1	1	4

$(1001100)_2 = (114)_8$

$x = 114$

3)

base 2	110	101	100
base 8	6	5	4

$(110101100)_2 = (654)_8$

$x = 654$

4)

base 2	001	011	011	111
base 8	1	3	3	7

$(1011011111)_2 = (1337)_8$

$x = 1337$

Esercizi conversione da ottale a binario

1.

base 8	1	2	3	2
base 2	001	010	011	010

$(1232)_8 = (1010011010)_2$

$x = 1010011010$

2.

base 8	7	2	2
base 2	111	010	010

$(722)_8 = (111010010)_2$

$x = 111010010$

3.

base 8	1	0	4	0
base 2	001	000	100	000

$(1040)_8 = (1000100000)_2$

$x = 1000100000$

4.

base 8	2	1	5
base 2	010	001	101

$(215)_8 = (10001101)_2$

$x = 10001101$

Esercizi conversione da esadecimale a binario

2.

base 16	1	1	2
base 2	0001	0001	0010

$(112)_{16} = (100010010)_2$

$x = 100010010$

3.

base 16	1	E	1
base 2	0001	1110	0001

$(1E1)_{16} = (111100001)_2$

$x = 111100001$

9.

base 16	3	E	2
base 2	0011	1110	0010

$(3E2)_{16} = (1111100010)_2$

$x = 1111100010$

10.

base 16	1	2	4
base 2	0001	0010	0100

$(124)_{16} = (100100100)_2$

$x = 100100100$

Esercizi conversione da binario a esadecimale

1)

base 2	0001	0000	1111
base 16	1	0	F

$(100001111)_2 = (10F)_{16}$

$x = 10F$

2)

base 2	1001	0001
base 16	9	1

$(10010001)_2 = (91)_{16}$

$x = 91$

3)

base 2	0010	1101
base 16	2	D

$(101101)_2 = (2D)_{16}$

$x = 2D$

4)

base 2	0011	0110	0011
base 16	3	6	3

$(1101100011)_2 = (363)_{16}$

$x = 363$

Conversione in base decimale

1) (1670)8 = 1*8^3+6*8^2+7*8^1+0*8^0 = 1*512+ 6*64+7*8+0*1
= 512+384+56+0 = 952
(1670)8 = (952)10

2) (654)8 = 6 *8^2 +5*8^1 +4*8^0 = 6*64 +5*8 + 4*1 = 384 + 40 + 4 = 428
(654)8 = (428)10

3) (3D4)16 = 3*16^2 + 13*16^1 + 4*16^0 =3*256+13*16+4*1 = 768+208+4 = 980
(3D4)16 = (980)10
x = 980

4) (37C)16 = 3*16^2 + 7*16^1 + 12*16^0 =3*256+7*16+12*1 = 768+112+12 = 892
(37C)16 = (892)10
x = 892

5) (1110001011)2 = 1*2^9+1*2^8+1*2^7+0*2^6+
0*2^5 +0*2^4 +1*2^3 +0*2^2 +1*2^1+1*2^0 =
1*512 + 1*256 + 1*128 + 0*64 + 0*32 + 0*16 + 1*8 + 0*4 + 1*2 + 1*1 =
512+256+128+0+0+0+8+0+2+1 = 907

6) (1010000111)2 = 1*2^9+0*2^8+1*2^7+0*2^6+
0*2^5 +0*2^4 +0*2^3+1*2^2 +1*2^1 +1*2^0 =
1*512 + 0*256 + 1*128 + 0*64 + 0*32 + 0*16 + 0*8 + 1*4 + 1*2 + 1*1 =
512+0+128+0+0+0+0+4+2+1 = 647
(1010000111)2 = (647)10

Conversione da base decimale

1)

quoziente	resto
197	
12	5
0	12

$$(197)_{10} = (C5)_{16}$$

2)

quoziente	resto
223	
111	1
55	1
27	1
13	1
6	1
3	0
1	1
0	1

$(223)_{10} = (11011111)_2$

$x = 11011111$