

**Informacioni** - Eshte nje element ne procesin e komunikimit te sistemeve qe kane nje kod te perbashket. P.sh.  $x=4$  (vlera e variables)

**Sistemet e numrave:**

**Decimal** (baze 10) - zakonisht perdoret nga njerezit per njehsime te ndryshme

**Binar** (baze 2) - perdoret nga kompjuterat sepse jane krijuar nga komponentet binar dixhitale (transistor)

**Oktal** (baze 8) dhe **Heksadecimal** (baze 16)- perdoren per njehsime dhe eshte nje forme e mire per ti shprehur numrat binar.

**Struktura e sistemit Binar (0 dhe 1)**

$$(101)_2 = 1*2^2 + 0*2^1 + 1*2^0$$

**Struktura e sistemit Decimal (0-9)**

$$(1^2 0^1 1^0)_{10} = 1*10^2 + 0*10^1 + 1*10^0$$

**Struktura e sistemit Oktal (0-7)**

$$(101)_8 = 1*8^2 + 0*8^1 + 1*8^0$$

**Struktura e sistemit heksadecimal (0 16)**

$$(101)_{16} = 1*16^2 + 0*16^1 + 1*16^0$$

$$(A01)_{16} = 10*16^2 + 0*16^1 + 1*16^0$$

**Kalimi BINAR → OKTAL**

$$(11011101)_2 = (?)_8$$

Ndajme sistemin me nga 3-shifra duke u nisur nga fundi dhe shtojme vleren 0 aty ku ka nevojë:

$$(011)_2 = (3)_8 \quad (011)_2 = (3)_8 \quad (101)_2 = (5)_8$$

$$(11011101)_2 = (335)_8$$

**Kalimi BINAR → DECIMAL**

$$(1^4 1^3 0^2 1^1 1^0)_2 = (?)_{10}$$

$$1 \cdot 2^4 + 1 \cdot 2^3 + 0 \cdot 2^2 + 1 \cdot 2^1 + 1 \cdot 2^0 = 16 + 8 + 2 + 1 = 27$$

$$(11011)_2 = (27)_{10}$$

**Kalimi BINAR → HEKSA-DECIMAL**

$$(11011)_2 = (?)_{16}$$

Ndajme sistemin me nga 4-shifra duke u nisur nga fundi dhe shtojme vleren 0 aty ku ka nevojë:

$$(0001)_2 = (1)_{16} \quad (1011)_2 = (B)_{16}$$

$$(11011)_2 = (1B)_{16}$$

$$\text{Shembull: } (10011101000101001010010)_2 = (?)_{16}$$

**Kalimi OKTAL → BINAR**

$$(16)_8 = (?)_2$$

$$(1)_8 = (001)_2 \quad (6)_8 = (110)_2$$

$$(16)_8 = (001110)_2$$

**Kalimi OKTAL → DECIMAL**

$$(5^2 3^1 4^0)_8 = (?)_{10}$$

$$5 * 8^2 + 3 * 8^1 + 4 * 8^0 = 320 + 24 + 4$$

$$(0^0 . 6^{-1} 2^{-2})_8 = (?)_{10}$$

$$6 * 8^{-1} + 2 * 8^{-2} = 6 * \frac{1}{8^1} + 2 * \frac{1}{8^2} = 0.78125$$

**Kalimi OKTAL → HEKSA-DECIMAL**

$$(7^3 5^2 2^1 3^0)_8 = (?)_{10}$$

1. Oktal → Binar

$$(7)_8 = 111$$

$$(5)_8 = 101$$

$$(2)_8 = 010$$

$$(3)_8 = 011$$

2. Binar → Heksa-Decimal

$$111 \ 101 \ 010 \ 011 \rightarrow 1111 \ 0101 \ 0011$$

$$(7523)_8 = (F53)_{16}$$

**Kalimi DECIMAL → BINAR**

$(19)_{10} = (?)_2$

- 19 : 2 = 9      mbetja 1
- 9 : 2 = 4      mbetja 1
- 4 : 2 = 2      mbetja 0
- 2 : 2 = 1      mbetja 0
- 1 : 2 = 0      mbetja 1

$(19)_{10} = (10011)_2$

**Kalimi DECIMAL → OKTAL**

$(247)_{10} = (?)_8$

- 247 : 8 = 30    mbetja 7
- 30 : 8 = 3     mbetja 6
- 3 : 8 = 0      mbetja 3

$(247)_{10} = (367)_8$

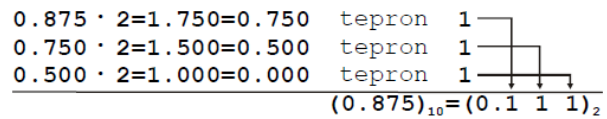
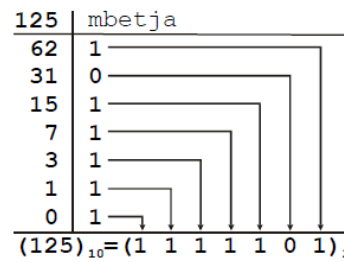
**Kalimi DECIMAL → HEKSA-DECIMAL**

$(247)_{10} = (?)_{16}$

- 3621 : 16 = 226      mbetja 5
- 226 : 16 = 14        mbetja 2
- 14 : 16 = 0          mbetja E

$(3621)_{10} = (E25)_{16}$

125.875



$(125.875)_{10} = (1111101.111)_2$

**Kalimi Decimal ==> Ternar**

- 190 : 3 = 63      mbetja 1
- 63 : 3 = 21      mbetja 0
- 21 : 3 = 7        mbetja 0
- 7 : 3 = 2         mbetja 1
- 2 : 3 = 0         mbetja 2

$(190)_{10} = (21001)_3$

**Kalimi HEKSA-DECIMAL → BINAR**

$$(4E)_{16} = (?)_2$$

$$(4) = 0100$$

$$(E) = 1110$$

$$(4E)_{16} = (0100\ 1110)_2$$

**Kalimi HEKSA-DECIMAL → OKTAL**

$$(B5A)_{16} = (?)_8$$

$$(B) = 1011$$

$$(5) = 0101$$

$$(A) = 1010$$

$$(B5A)_{16} = (1011\ 0101\ 1010)_2 \rightarrow (101\ 101\ 011\ 010)_2$$

$$(B5A)_{16} = (5532)_8$$

**Kalimi HEKSA-DECIMAL → DECIMAL**

$$(1DA5)_{16} = (?)_{10}$$

$$1 \cdot 16^3 + D \cdot 16^2 + A \cdot 16^1 + 5 \cdot 16^0 = 7589$$

$$(1DA5)_{16} = (7589)_{10}$$