

ARHITECTURA SISTEMELOR DE CALCUL SEMINAR 0x00

NOTIȚE SUPORT SEMINAR

Cristian Rusu

CONVERSII, EX 1

| | | | | |
|--|--|--|--|--------|
| | | | | 0x1111 |
|--|--|--|--|--------|

hexa: 0x1111

binar:

baza 4:

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 1

| | | | | |
|--|--|--|--|--------|
| | | | | 0x1111 |
|--|--|--|--|--------|

hexa: 0x1111

binar: 0001 0001 0001 0001

baza 4:

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 1

| | | | | |
|--|--|--|--|--------|
| | | | | 0x1111 |
|--|--|--|--|--------|

hexa: 0x1111

binar: 0001 0001 0001 0001

baza 4: 00 01 00 01 00 01 00 01

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 1

| | | | | |
|--|--|--|--|--------|
| | | | | 0x1111 |
|--|--|--|--|--------|

hexa: 0x1111

binar: 0001 0001 0001 0001

baza 4: 00 01 00 01 00 01 00 01 = 01010101

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 1

| | | | | |
|--|--|--|--|--------|
| | | | | 0x1111 |
|--|--|--|--|--------|

hexa: 0x1111

binar: 0001 0001 0001 0001

baza 4: 00 01 00 01 00 01 00 01 = 01010101

baza 8: 0 001 000 100 010 001

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 1

| | | | | |
|--|--|--|--|--------|
| | | | | 0x1111 |
|--|--|--|--|--------|

hexa: 0x1111

binar: 0001 0001 0001 0001

baza 4: 00 01 00 01 00 01 00 01 = 01010101

baza 8: 0 001 000 100 010 001 = 10421

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 1

| | | | | |
|--|--|--|--|--------|
| | | | | 0x1111 |
|--|--|--|--|--------|

hexa: 0x1111

binar: 0001 0001 0001 0001

baza 4: 00 01 00 01 00 01 00 01 = 01010101

baza 8: 0 001 000 100 010 001 = 10421

baza 10: 4369

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 1

| | | | | |
|---------------------|--|--|--|--|
| 1111 1111 0000 0000 | | | | |
|---------------------|--|--|--|--|

binar: 1111 1111 0000 0000

hexa:

baza 4:

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 1

| | | | | |
|---------------------|--|--|--|--|
| 1111 1111 0000 0000 | | | | |
|---------------------|--|--|--|--|

binar: 1111 1111 0000 0000

hexa: 0xFF00

baza 4:

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 1

| | | | | |
|---------------------|--|--|--|--|
| 1111 1111 0000 0000 | | | | |
|---------------------|--|--|--|--|

binar: 1111 1111 0000 0000

hexa: 0xFF00

baza 4: 11 11 11 11 00 00 00 00

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 1

| | | | | |
|---------------------|--|--|--|--|
| 1111 1111 0000 0000 | | | | |
|---------------------|--|--|--|--|

binar: 1111 1111 0000 0000

hexa: 0xFF00

baza 4: 11 11 11 11 00 00 00 00 = 33330000

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 1

| | | | | |
|---------------------|--|--|--|--|
| 1111 1111 0000 0000 | | | | |
|---------------------|--|--|--|--|

binar: 1111 1111 0000 0000

hexa: 0xFF00

baza 4: 11 11 11 11 00 00 00 00 = 33330000

baza 8: 1 111 111 100 000 000

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 1

| | | | | |
|---------------------|--|--|--|--|
| 1111 1111 0000 0000 | | | | |
|---------------------|--|--|--|--|

binar: 1111 1111 0000 0000

hexa: 0xFF00

baza 4: 11 11 11 11 00 00 00 00 = 33330000

baza 8: 1 111 111 100 000 000 = 177400

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 1

| | | | | |
|---------------------|--|--|--|--|
| 1111 1111 0000 0000 | | | | |
|---------------------|--|--|--|--|

binar: 1111 1111 0000 0000

hexa: 0xFF00

baza 4: 11 11 11 11 00 00 00 00 = 33330000

baza 8: 1 111 111 100 000 000 = 177400

baza 10: 65280

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 2

| | | | | |
|--|--|--|--|--------|
| | | | | 0xFEED |
|--|--|--|--|--------|

hexa: 0xFEED

binar:

baza 4:

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 2

| | | | | |
|--|--|--|--|--------|
| | | | | 0xFEED |
|--|--|--|--|--------|

hexa: 0xFEED

binar: 1111 1110 1110 1101

baza 4:

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 2

| | | | | |
|--|--|--|--|--------|
| | | | | 0xFEED |
|--|--|--|--|--------|

hexa: 0xFEED

binar: 1111 1110 1110 1101

baza 4: 11 11 11 10 11 10 11 01

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 2

| | | | | |
|--|--|--|--|--------|
| | | | | 0xFEED |
|--|--|--|--|--------|

hexa: 0xFEED

binar: 1111 1110 1110 1101

baza 4: 11 11 11 10 11 10 11 01 = 33323231

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 2

| | | | | |
|--|--|--|--|--------|
| | | | | 0xFEED |
|--|--|--|--|--------|

hexa: 0xFEED

binar: 1111 1110 1110 1101

baza 4: 11 11 11 10 11 10 11 01 = 33323231

baza 8: 1 111 111 011 101 101

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 2

| | | | | |
|--|--|--|--|--------|
| | | | | 0xFEED |
|--|--|--|--|--------|

hexa: 0xFEED

binar: 1111 1110 1110 1101

baza 4: 11 11 11 10 11 10 11 01 = 33323231

baza 8: 1 111 111 011 101 101 = 177355

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 2

| | | | | |
|--|--|--|--|--------|
| | | | | 0xFEED |
|--|--|--|--|--------|

hexa: 0xFEED

binar: 1111 1110 1110 1101

baza 4: 11 11 11 10 11 10 11 01 = 33323231

baza 8: 1 111 111 011 101 101 = 177355

baza 10: -275

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 2

| | | | | |
|---------------------|--|--|--|--|
| 1111 1111 0000 0000 | | | | |
|---------------------|--|--|--|--|

binar: 1111 1111 0000 0000

hexa:

baza 4:

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 2

| | | | | |
|---------------------|--|--|--|--|
| 1111 1111 0000 0000 | | | | |
|---------------------|--|--|--|--|

binar: 1111 1111 0000 0000

hexa: 0xFF00

baza 4:

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 2

| | | | | |
|---------------------|--|--|--|--|
| 1111 1111 0000 0000 | | | | |
|---------------------|--|--|--|--|

binar: 1111 1111 0000 0000

hexa: 0xFF00

baza 4: 11 11 11 11 00 00 00 00

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 2

| | | | | |
|---------------------|--|--|--|--|
| 1111 1111 0000 0000 | | | | |
|---------------------|--|--|--|--|

binar: 1111 1111 0000 0000

hexa: 0xFF00

baza 4: 11 11 11 11 00 00 00 00 = 33330000

baza 8:

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 2

| | | | | |
|---------------------|--|--|--|--|
| 1111 1111 0000 0000 | | | | |
|---------------------|--|--|--|--|

binar: 1111 1111 0000 0000

hexa: 0xFF00

baza 4: 11 11 11 11 00 00 00 00 = 33330000

baza 8: 1 111 111 100 000 000

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 2

| | | | | |
|---------------------|--|--|--|--|
| 1111 1111 0000 0000 | | | | |
|---------------------|--|--|--|--|

binar: 1111 1111 0000 0000

hexa: 0xFF00

baza 4: 11 11 11 11 00 00 00 00 = 33330000

baza 8: 1 111 111 100 000 000 = 177400

baza 10:

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

CONVERSII, EX 2

| | | | | |
|---------------------|--|--|--|--|
| 1111 1111 0000 0000 | | | | |
|---------------------|--|--|--|--|

binar: 1111 1111 0000 0000

hexa: 0xFF00

baza 4: 11 11 11 11 00 00 00 00 = 33330000

baza 8: 1 111 111 100 000 000 = 177400

baza 10: -256

| | | | | | | | | |
|------------------|---|-------------------|---|-------------------|---|---|---|---|
| 0 _{hex} | = | 0 _{dec} | = | 0 _{oct} | 0 | 0 | 0 | 0 |
| 1 _{hex} | = | 1 _{dec} | = | 1 _{oct} | 0 | 0 | 0 | 1 |
| 2 _{hex} | = | 2 _{dec} | = | 2 _{oct} | 0 | 0 | 1 | 0 |
| 3 _{hex} | = | 3 _{dec} | = | 3 _{oct} | 0 | 0 | 1 | 1 |
| 4 _{hex} | = | 4 _{dec} | = | 4 _{oct} | 0 | 1 | 0 | 0 |
| 5 _{hex} | = | 5 _{dec} | = | 5 _{oct} | 0 | 1 | 0 | 1 |
| 6 _{hex} | = | 6 _{dec} | = | 6 _{oct} | 0 | 1 | 1 | 0 |
| 7 _{hex} | = | 7 _{dec} | = | 7 _{oct} | 0 | 1 | 1 | 1 |
| 8 _{hex} | = | 8 _{dec} | = | 10 _{oct} | 1 | 0 | 0 | 0 |
| 9 _{hex} | = | 9 _{dec} | = | 11 _{oct} | 1 | 0 | 0 | 1 |
| A _{hex} | = | 10 _{dec} | = | 12 _{oct} | 1 | 0 | 1 | 0 |
| B _{hex} | = | 11 _{dec} | = | 13 _{oct} | 1 | 0 | 1 | 1 |
| C _{hex} | = | 12 _{dec} | = | 14 _{oct} | 1 | 1 | 0 | 0 |
| D _{hex} | = | 13 _{dec} | = | 15 _{oct} | 1 | 1 | 0 | 1 |
| E _{hex} | = | 14 _{dec} | = | 16 _{oct} | 1 | 1 | 1 | 0 |
| F _{hex} | = | 15 _{dec} | = | 17 _{oct} | 1 | 1 | 1 | 1 |

Operații Binare, Ex 3

$$\begin{array}{r|l} 0101\ 1100\ 1111\ 0011 & \\ 1111\ 1111\ 0000\ 0000 & + \\ \hline \end{array}$$

$$\begin{array}{r|l} 1111\ 1111\ 1111\ 1111 & \\ 0000\ 0000\ 0000\ 0001 & + \\ \hline \end{array}$$

- care sunt operanzii (zecimal)?

Operații Binare, Ex 3

$$\begin{array}{r|l} 0101\ 1100\ 1111\ 0011 & \\ 1111\ 1111\ 0000\ 0000 & + \\ \hline & \end{array}$$

$$\begin{array}{r|l} 1111\ 1111\ 1111\ 1111 & \\ 0000\ 0000\ 0000\ 0001 & + \\ \hline & \end{array}$$

- **care sunt operanzii (zecimal)?**
 - stânga: 23795 și -256
 - dreapta: -1 și +1

Operații Binare, Ex 3

$$\begin{array}{r|l} 1111 & 1111 & 1111 & 1111 \\ 1000 & 0000 & 0000 & 0000 \\ \hline & + & & \end{array}$$

$$\begin{array}{r|l} 1000 & 0000 & 0000 & 0000 \\ 0000 & 0000 & 0000 & 0001 \\ \hline & + & & \end{array}$$

- care sunt operanzii (zecimal)?

Operații Binare, Ex 3

$$\begin{array}{r|l} 1111 & 1111 & 1111 & 1111 \\ 1000 & 0000 & 0000 & 0000 \\ \hline & + & & \end{array}$$

$$\begin{array}{r|l} 1000 & 0000 & 0000 & 0000 \\ 0000 & 0000 & 0000 & 0001 \\ \hline & + & & \end{array}$$

- **care sunt operanzii (zecimal)?**
 - stânga: -1 și -32 768
 - dreapta: -32 768 și +1

Operații Binare, Ex 4

$$\begin{array}{r|l} 0101 & 1100 & 1111 & 0011 \\ 0101 & 1100 & 1111 & 0011 \\ \hline & \text{AND} \end{array}$$

| X | Y | X AND Y |
|---|---|---------|
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

$$\begin{array}{r|l} 1101 & 1100 & 1111 & 0011 \\ 1101 & 1100 & 1111 & 0011 \\ \hline & \text{XOR} \end{array}$$

| X | Y | X XOR Y |
|---|---|---------|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

Operații Binare, Ex 4

$$\begin{array}{cccc|c} 0000 & 0000 & 1111 & 1111 & \\ 0000 & 0001 & 0000 & 0000 & \text{AND} \\ \hline \end{array}$$

$$\begin{array}{cccc|c} 1100 & 0110 & 1001 & 1110 & \\ 1001 & 1111 & 0110 & 1100 & \text{XOR} \\ 1100 & 0110 & 1001 & 1110 & \text{XOR} \\ \hline \end{array}$$

| X | Y | X AND Y |
|---|---|---------|
| 0 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 0 | 0 |
| 1 | 1 | 1 |

| X | Y | X XOR Y |
|---|---|---------|
| 0 | 0 | 0 |
| 0 | 1 | 1 |
| 1 | 0 | 1 |
| 1 | 1 | 0 |

ÎNTREBĂRI SCURTE, EX 5

- a) $2^N - 1$
- b) $2^{N-1} - 1$ și -2^{N-1}
- c) aproximativ $\log_2 x$, exact sunt $\text{ceil}(\log_2 (x+1))$
- d) $4k$
- e) $\text{ceil}(k / 4)$
- f) $\text{ceil}(k \log_2 10)$

BINARY FIXED-POINT, EX 6

| | | | | | | | | | | | | | | | | | |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|--|----------|----------|----------|----------|----------|----------|----------|-----|
| ... | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 | | 2^{-1} | 2^{-2} | 2^{-3} | 2^{-4} | 2^{-5} | 2^{-6} | 2^{-7} | ... |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|--|----------|----------|----------|----------|----------|----------|----------|-----|

- $\frac{1}{2} = 0.5$
- $\frac{1}{4} = 0.25$
- $\frac{1}{8} = 0.125$
- $\frac{1}{16} = 0.0625$
- ...
- **Calculați reprezentările pentru**
 - (a) 101.101;
 - (b) 111.001;
 - (c) 1110.00111;
 - (a) 3.75;
 - (b) 12.3125;
 - (c) 3.078125;

BINARY FIXED-POINT, EX 6

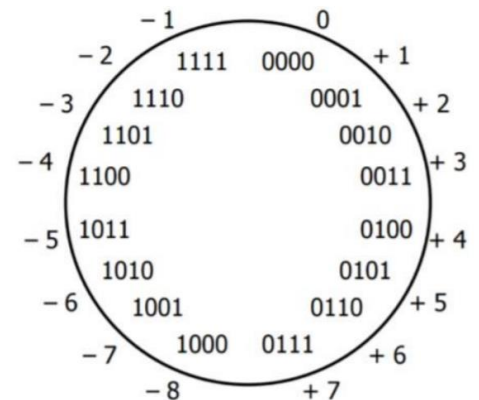
| | | | | | | | | | | | | | | | | | |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|--|----------|----------|----------|----------|----------|----------|----------|-----|
| ... | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 | | 2^{-1} | 2^{-2} | 2^{-3} | 2^{-4} | 2^{-5} | 2^{-6} | 2^{-7} | ... |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|--|----------|----------|----------|----------|----------|----------|----------|-----|

- $\frac{1}{2} = 0.5$
- $\frac{1}{4} = 0.25$
- $\frac{1}{8} = 0.125$
- $\frac{1}{16} = 0.0625$
- ...
- **Calculați reprezentările pentru**
 - (a) 101.101; **5.625**
 - (b) 111.001;
 - (c) 1110.00111;
 - (a) 3.75; **11.11**
 - (b) 12.3125;
 - (c) 3.078125;

COMPLEMENT FAȚĂ DE DOI, EX 7

| | | | | | | | | |
|-------------|--------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | -2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |

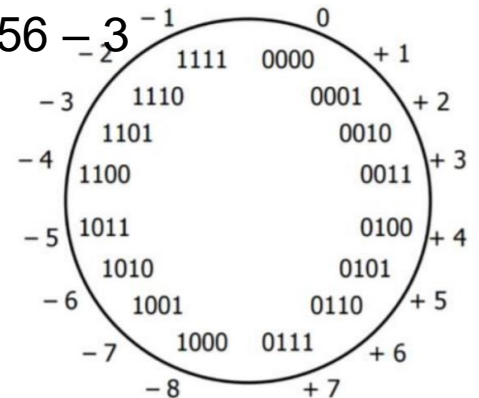
- $$x = -b_{N-1}2^{N-1} + \sum_{i=0}^{N-2} b_i 2^i$$
- ca să reprezentăm un număr negativ, luăm valoarea pozitivă a numărului, îi inversăm biții și adunăm unu
- de ce funcționează această procedură?
 - pornim de la faptul că folosim aritmetică modulo
 - fixăm și suntem pe 8 biți



COMPLEMENT FAȚĂ DE DOI, EX 7

| | | | | | | | | |
|-------------|--------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | -2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |

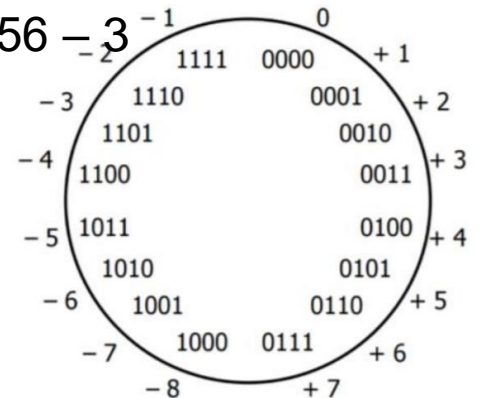
- $$x = -b_{N-1}2^{N-1} + \sum_{i=0}^{N-2} b_i 2^i$$
- ca să reprezentăm un număr negativ, luăm valoarea pozitivă a numărului, îi inversăm biții și adunăm unu
- de ce funcționează această procedură?
 - pornim de la faptul că folosim aritmetică modulo
 - fixăm și suntem pe 8 biți
 - deci, să scădem 3 e echivalent cu a aduna $256 - 3 = 253$
 - $-3 \equiv 256 - 3 =$



COMPLEMENT FAȚĂ DE DOI, EX 7

| | | | | | | | | |
|-------------|--------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | -2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |

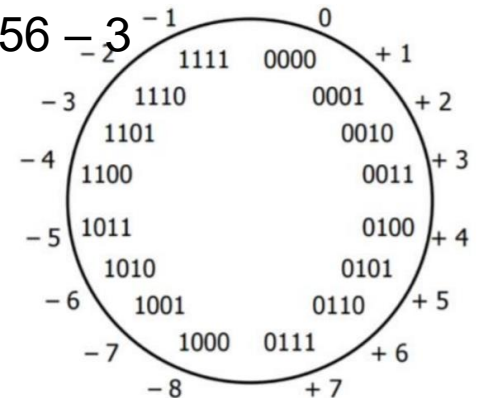
- $$x = -b_{N-1}2^{N-1} + \sum_{i=0}^{N-2} b_i 2^i$$
- ca să reprezentăm un număr negativ, luăm valoarea pozitivă a numărului, îi inversăm biții și adunăm unu
- de ce funcționează această procedură?
 - pornim de la faptul că folosim aritmetică modulo
 - fixăm și suntem pe 8 biți
 - deci, să scădem 3 e echivalent cu a aduna $256 - 3 = 253$
 - $-3 \equiv 256 - 3 = 1\ 0000\ 0000 - 0000\ 0101$



COMPLEMENT FAȚĂ DE DOI, EX 7

| | | | | | | | | |
|-------------|--------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | -2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |

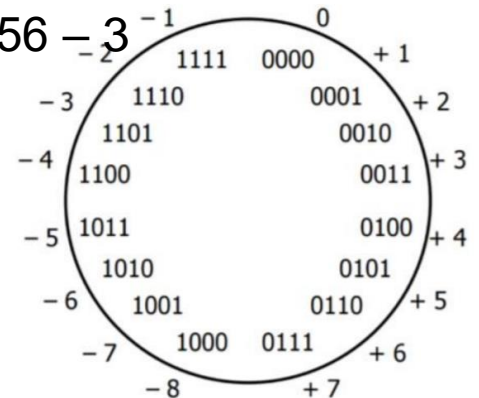
- $$x = -b_{N-1}2^{N-1} + \sum_{i=0}^{N-2} b_i 2^i$$
- ca să reprezentăm un număr negativ, luăm valoarea pozitivă a numărului, îi inversăm biții și adunăm unu
- de ce funcționează această procedură?
 - pornim de la faptul că folosim aritmetică modulo
 - fixăm și suntem pe 8 biți
 - deci, să scădem 3 e echivalent cu a aduna $256 - 3 = 253$
 - $-3 \equiv 256 - 3 = 1\ 0000\ 0000 - 0000\ 0101$
 $= 1 + 1111\ 1111 - 0000\ 0101$



COMPLEMENT FAȚĂ DE DOI, EX 7

| | | | | | | | | |
|-------------|--------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | -2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |

- $$x = -b_{N-1}2^{N-1} + \sum_{i=0}^{N-2} b_i 2^i$$
- ca să reprezentăm un număr negativ, luăm valoarea pozitivă a numărului, îi inversăm biții și adunăm unu
- de ce funcționează această procedură?
 - pornim de la faptul că folosim aritmetică modulo
 - fixăm și suntem pe 8 biți
 - deci, să scădem 3 e echivalent cu a aduna $256 - 3 = 253$
 - $-3 \equiv 256 - 3 = 1\ 0000\ 0000 - 0000\ 0101$
 $= 1 + 1111\ 1111 - 0000\ 0101$
 $= 1 + (3 \text{ cu biții inversați})$

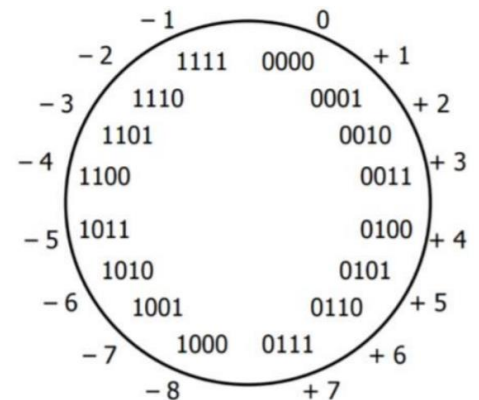


COMPLEMENT FAȚĂ DE DOI, EX 7

| | | | | | | | | |
|-------------|--------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | -2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |

- $x = -b_{N-1}2^{N-1} + \sum_{i=0}^{N-2} b_i 2^i$
- ca să reprezentăm un număr negativ, luăm valoarea pozitivă a numărului, îi inversăm biții și adunăm unu
- de ce funcționează această procedură?

$$- \left(-2^N + \sum_{i=0}^{N-1} b_i 2^i \right) =$$



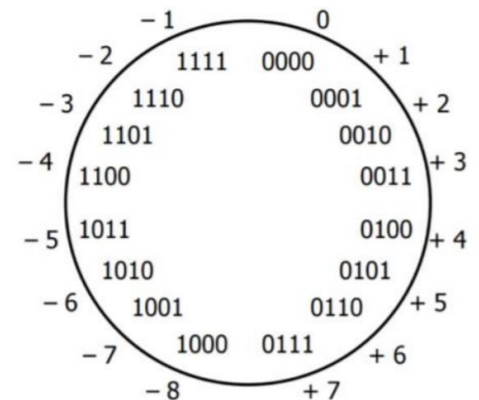
COMPLEMENT FAȚĂ DE DOI, EX 7

| | | | | | | | | |
|-------------|--------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | -2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |

- $x = -b_{N-1}2^{N-1} + \sum_{i=0}^{N-2} b_i 2^i$
- ca să reprezentăm un număr negativ, luăm valoarea pozitivă a numărului, îi inversăm biții și adunăm unu
- de ce funcționează această procedură?

$$-\left(-2^N + \sum_{i=0}^{N-1} b_i 2^i\right) =$$

$$2^{N+1} = \sum_{i=0}^N 2^i + 1$$



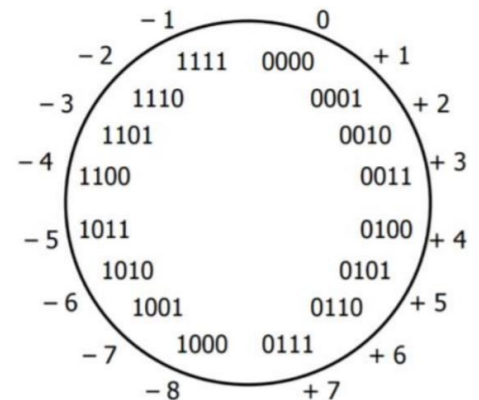
COMPLEMENT FAȚĂ DE DOI, EX 7

| | | | | | | | | |
|-------------|--------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | -2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |

- $x = -b_{N-1}2^{N-1} + \sum_{i=0}^{N-2} b_i 2^i$
- ca să reprezentăm un număr negativ, luăm valoarea pozitivă a numărului, îi inversăm biții și adunăm unu
- de ce funcționează această procedură?

$$-\left(-2^N + \sum_{i=0}^{N-1} b_i 2^i\right) = 2^N - \sum_{i=0}^{N-1} b_i 2^i$$

$$2^{N+1} = \sum_{i=0}^N 2^i + 1$$

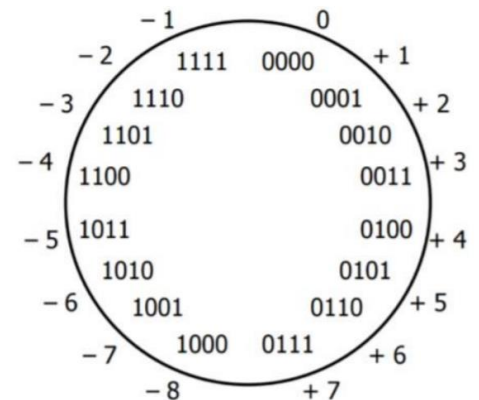


COMPLEMENT FAȚĂ DE DOI, EX 7

| | | | | | | | | |
|-------------|--------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | -2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |

- $x = -b_{N-1}2^{N-1} + \sum_{i=0}^{N-2} b_i 2^i$
- ca să reprezentăm un număr negativ, luăm valoarea pozitivă a numărului, îi inversăm biții și adunăm unu
- de ce funcționează această procedură?

$$\begin{aligned}
 - \left(-2^N + \sum_{i=0}^{N-1} b_i 2^i \right) &= 2^N - \sum_{i=0}^{N-1} b_i 2^i \\
 2^{N+1} = \sum_{i=0}^N 2^i + 1 &= \sum_{i=0}^{N-1} 2^i + 1 - \sum_{i=0}^{N-1} b_i 2^i
 \end{aligned}$$

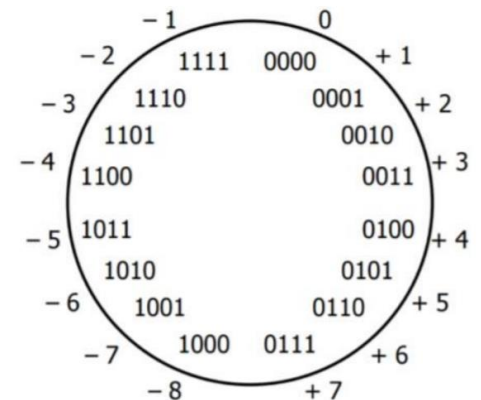


COMPLEMENT FAȚĂ DE DOI, EX 7

| | | | | | | | | |
|-------------|--------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | -2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |

- $x = -b_{N-1}2^{N-1} + \sum_{i=0}^{N-2} b_i 2^i$
- ca să reprezentăm un număr negativ, luăm valoarea pozitivă a numărului, îi inversăm biții și adunăm unu
- de ce funcționează această procedură?

$$\begin{aligned}
 - \left(-2^N + \sum_{i=0}^{N-1} b_i 2^i \right) &= 2^N - \sum_{i=0}^{N-1} b_i 2^i \\
 2^{N+1} = \sum_{i=0}^N 2^i + 1 &= \sum_{i=0}^{N-1} 2^i + 1 - \sum_{i=0}^{N-1} b_i 2^i \\
 &= \sum_{i=0}^{N-1} (1 - b_i) 2^i + 1
 \end{aligned}$$

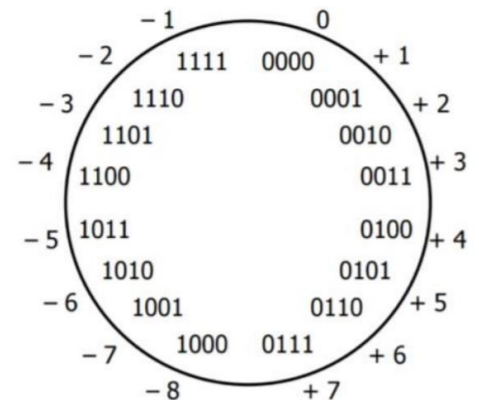


COMPLEMENT FAȚĂ DE DOI, EX 7

| | | | | | | | | |
|-------------|--------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | -2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |

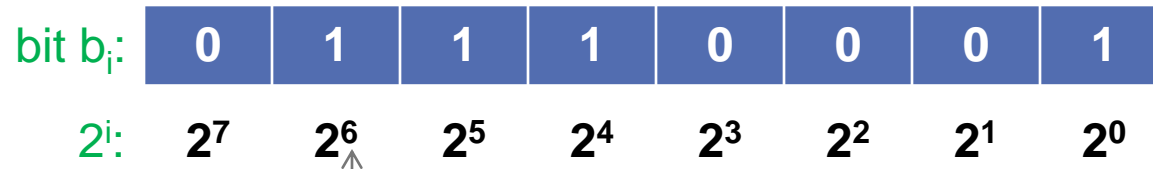
- $x = -b_{N-1}2^{N-1} + \sum_{i=0}^{N-2} b_i 2^i$
- ca să reprezentăm un număr negativ, luăm valoarea pozitivă a numărului, îi inversăm biții și adunăm unu
- de ce funcționează această procedură?

$$\begin{aligned}
 - \left(-2^N + \sum_{i=0}^{N-1} b_i 2^i \right) &= 2^N - \sum_{i=0}^{N-1} b_i 2^i \\
 2^{N+1} = \sum_{i=0}^N 2^i + 1 &= \sum_{i=0}^{N-1} 2^i + 1 - \sum_{i=0}^{N-1} b_i 2^i \\
 &= \sum_{i=0}^{N-1} (1 - b_i) 2^i + 1 \\
 &= (\text{inversam bitii}) + 1
 \end{aligned}$$



LOGARITM ÎNTREG, EX 9

| | | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |



- arătați că $\lfloor \log_2 x \rfloor = i_{\max}$
- pornim de la reprezentarea binară și aplicăm logaritmul

$$x = \sum_{i=0}^{N-1} b_i 2^i$$

$$\log_2 x = \log_2 \left(\sum_{i=0}^{N-1} b_i 2^i \right)$$

LOGARITM ÎNTREG, EX 9

| | | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |

- arătați că $\lfloor \log_2 x \rfloor = i_{\max}$
- pornim de la reprezentarea binară și aplicăm logaritmul

$$x = \sum_{i=0}^{N-1} b_i 2^i$$

$$\begin{aligned} \log_2 x &= \log_2 \left(\sum_{i=0}^{N-1} b_i 2^i \right) \\ &= \log_2 \left(2^{i_{\max}} \left(\sum_{i=0}^{N-1} b_i \frac{2^i}{2^{i_{\max}}} \right) \right) \end{aligned}$$

LOGARITM ÎNTREG, EX 9

| | | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |

- arătați că $\lfloor \log_2 x \rfloor = i_{\max}$
- pornim de la reprezentarea binară și aplicăm logaritmul

$$x = \sum_{i=0}^{N-1} b_i 2^i$$

$$\log_2 x = \log_2 \left(\sum_{i=0}^{N-1} b_i 2^i \right)$$

$$= \log_2 \left(2^{i_{\max}} \left(\sum_{i=0}^{N-1} b_i \frac{2^i}{2^{i_{\max}}} \right) \right)$$

$$= \log_2 2^{i_{\max}} + \log_2 \left(\left(\sum_{i=0}^{N-1} b_i \frac{2^i}{2^{i_{\max}}} \right) \right)$$

LOGARITM ÎNTREG, EX 9

| | | | | | | | | |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
| bit b_i : | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |
| 2^i : | 2^7 | 2^6 | 2^5 | 2^4 | 2^3 | 2^2 | 2^1 | 2^0 |

- arătați că $\lfloor \log_2 x \rfloor = i_{\max}$
- pornim de la reprezentarea binară și aplicăm logaritmul

$$x = \sum_{i=0}^{N-1} b_i 2^i$$

$$\log_2 x = \log_2 \left(\sum_{i=0}^{N-1} b_i 2^i \right)$$

$$= \log_2 \left(2^{i_{\max}} \left(\sum_{i=0}^{N-1} b_i \frac{2^i}{2^{i_{\max}}} \right) \right)$$

$$= \log_2 2^{i_{\max}} + \log_2 \left(\left(\sum_{i=0}^{N-1} b_i \frac{2^i}{2^{i_{\max}}} \right) \right)$$

$$= i_{\max} + C, \quad C < 1$$

