1. **Перевести число 327 в системы: двоичную, восьмеричную, шестнадцатеричную и обратно из всех в десятичную.**

|  |  |
| --- | --- |
| 32710 -> X2 -> 1010001112  327 % 2 | 1 163 % 2 | 1 81 % 2 | 1  40 % 2 | 0  20 % 2 | 0  10 % 2 | 0  5 % 2 | 0  2 % 2 | 0  1 | 101000111 -> X10 -> 32710  1\*28 + 0\*27 + 1\*26 + 0\*25 + 0\*24 + 0\*23 + 1\*22 + 1\*21 + 1\*20 = 256 + 0 + 64 + 0 + 0 + 0 + 4 + 2 + 1 = 327 |
| 32710 -> X8 -> 05078  327 % 8 | 7  40 % 8 | 0  5 | 05078 -> X10 -> 32710  5 \* 82 + 0 \* 81 + 7 \* 80 = 320 + 0 +7 = 327 |
| 32710 -> X16 -> 0x14716  327 % 16 | 7  20 % 16 | 4 1 | 0x14716 -> X10 -> 32710  1 \* 162 + 4 \* 161 + 7 \* 160 = 256 + 64 + 7 = 327 |

|  |  |
| --- | --- |
| 1010001112 -> X8 -> 05078  101 000 111  5 0 7 | 1010001112 -> X16 -> 0x14716  0001 0100 0111  1 4 7 |

1. **Выполнить задания со слайда 12 презентации 2-го урока**
   1. **Why doesn't the unary (only one symbol) numbering system exist?**

The unary system is simple, but has a number of disadvantages:

- cumbersome and inconvenient representation of large numbers;

- absence of zero;

- difficulty in performing arithmetic operations.

* 1. **What the numbering system does the number 1011101 present?**

To all but unary

* 1. **Think of common method for conversions from any numbering system to any.**

Decimal

* 1. **Convert number %$@$%%@ presented in the numbering system with three symbols % - 2; @ - 0; $ - 1 to the system with 6 Arabic numbers (0 – 5).**

%$@$%%@ -> 21012203 -> X6 -> 120406

|  |  |
| --- | --- |
| 21012203 = 2\*36 + 1\*35 + 0\*34 + 1\*33 + 2\*32 + 2\*31 + 0\*30 = 175210 | 1752 % 6 | 0  292 % 6 | 4  48 % 6 | 0  8 % 6 | 2 1 |

* 1. **Convert binary number 1011101 into the quarto (четверичная) numbering system**

10111012 -> X4 -> 11314

01 01 11 01

1 1 3 1

* 1. **Convert following impulse diagram into binary, octal, hexadecimaland, decimal number (impulse–1, no impulse–0)**

****

1 0 1 1 0 1 0 0 1 0 1 1

1011010010112 -> X8 -> 055138

101 101 001 011

5 5 1 3

55138 -> X16 -> 0xB4B16

|  |  |
| --- | --- |
| 5\*83 + 5\*82 + 1\*81 + 3\*80 = 289110 | 2891 % 16 | 11 = B  180 % 16 | 4  11 | 11 = B |

0xB4B16 -> X10 -> 289110

11\*162 + 4\*161 + 11\*160 = 289110