|  |  |  |
| --- | --- | --- |
|  | | |
| Федеральное государственное бюджетное  образовательное учреждение высшего образования «Новосибирский государственный технический университет» | | |
|  | | |
| Кафедра прикладной математики | | |
| Практическое задание № 1 | | |
| по дисциплине «Информатика» | | |
| **Представление данных в ЭВМ** | | |
|  | | |
|  | Бригада 1 | Таджибаев Завкиддин |
| Группа ПМ-25 | МИнвалиева ТАмила |
| Вариант 1 | Абдукаримов Абдумалик |
|  |  |
|  |  |
|  |  |
| Преподаватель | Тракимус Юрий Викторович |
|  |  |
| Новосибирск, 2023 | | |

1. **Задание**

1) Перевести заданное число в двоично-десятичный код;

304; 125; 265.

2) Расшифровать число в двоично-десятичный код;

011110000111; 011001000010; 010101110110.

3) Зашифровать и дешифровать заданные фрагменты текста, используя таблицу кодов ASCII;

Компьютер; 224 226 242 238 240 232 231 224 246 232 255;

4) Записать прямой и дополнительный коды восьмибитового числа;

124; -124; 47.

5) Записать целое число по его дополнительному коду;

1100111111010010; 1101001101101100; 0111010110000000;

6) Записать шестнадцатеричное восьмибайтное и четырехбайтное представления действительного числа, интерпретируя его как число с плавающей запятой;

а) -187,25; 465,625;

б) -146,836; 407,555;

7) Преобразовать шестнадцатеричный восьмибайтный и четырехбайтный коды в число с плавающей запятой.

а) C3295000; 41ED8000;

б) C073660000000000; 405FA70000000000.

1. **Решение**

**2.1 Перевести заданное число в двоично-десятичный код**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0000 | 0001 | 0010 | 0011 | 0100 | 0101 | 0110 | 0111 | 1000 | 1001 |

30410 = 0011 0000 01002-10

|  |  |  |
| --- | --- | --- |
| 3 | 0 | 4 |
| ↓ | ↓ | ↓ |
| 0011 | 0000 | 0100 |

12510 =0001 0010 01012-10

|  |  |  |
| --- | --- | --- |
| 1 | 2 | 5 |
| ↓ | ↓ | ↓ |
| 0001 | 0010 | 0101 |

26510 = 0010 0110 01012-10

|  |  |  |
| --- | --- | --- |
| 2 | 6 | 5 |
| ↓ | ↓ | ↓ |
| 0010 | 0110 | 0101 |

**2.2 Расшифровать число в двоично-десятичный код**

0111 1000 01112-10 = 78710

|  |  |  |
| --- | --- | --- |
| 0111 | 1000 | 0111 |
| ↓ | ↓ | ↓ |
| 7 | 8 | 7 |

0110 0100 00102-10 = 64210

|  |  |  |
| --- | --- | --- |
| 0110 | 0100 | 0010 |
| ↓ | ↓ | ↓ |
| 6 | 4 | 2 |

0101 0111 01102-10 = 57610

|  |  |  |
| --- | --- | --- |
| 0101 | 0111 | 0110 |
| ↓ | ↓ | ↓ |
| 5 | 7 | 6 |

**2.3 Зашифровать и дешифровать заданные фрагменты текста, используя таблицу кодов ASCII**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 224 | а | 232 | и | 240 | р | 248 | ш |
| 225 | б | 233 | й | 241 | с | 249 | щ |
| 226 | в | 234 | к | 242 | т | 250 | ъ |
| 227 | г | 235 | л | 243 | у | 251 | ы |
| 228 | д | 236 | м | 244 | ф | 252 | ь |
| 229 | е | 237 | н | 245 | х | 253 | э |
| 230 | ж | 238 | о | 246 | ц | 254 | ю |
| 231 | з | 239 | п | 247 | ч | 255 | я |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| к | о | м | п | ь | ю | т | е | р |
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| 234 | 238 | 236 | 239 | 252 | 254 | 242 | 229 | 240 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 224 | 226 | 242 | 238 | 240 | 232 | 231 | 224 | 246 | 232 | 255 |
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| а | в | т | о | р | и | з | а | ц | и | я |

**2.4 Записать прямой и дополнительный коды восьмибитового числа**

|  |  |  |
| --- | --- | --- |
| Число | Прямой код | Дополнительный код |
| 12410 | 0111 1100 | 0111 1100 |
| -12410 | 0111 1100 | 1000 0011(обратный код) + 1 = 1000 0100 |
| 4710 | 0010 1111 | 1. 1 |

**2.5 Записать целое число по его дополнительному коду**

|  |  |  |  |
| --- | --- | --- | --- |
| **Дополнительный код** | 1100 1111 1101 0010 | 1101 0011 0110 1100 | 0111 0101 1000 0000 |
| **Инверсия** | 1100 1111 1101 0010 – 1 = 1100 1111 1101 0001 | 1101 0011 0110 1100 – 1 = 1101 0011 0110 1011 | 1000 1010 0111 1111 |
| **Прямой код** | 0011 0000 0010 1110 | 0010 1100 1001 0100 | 0111 0101 1000 0000 |
| **Число** | -12334 | - 11412 | +30080 |

**2.6 Записать шестнадцатеричное восьмибайтное и четырехбайтное представления действительного числа, интерпретируя его как число с плавающей запятой**

а) |-187,2510| = 1011 1011,012 = 1,0111 0110 12 \* 27

рс8 = 7 + (28 – 1 - 1) = 7 + 127 = 13410 = 1000 01102

рс11= 7 + (211 – 1 - 1) = 7 + 1023 = 103010 = 1000 0000 1102

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 0000 | 4 | 0100 | 8 | 1000 | C | 1100 |
| 1 | 0001 | 5 | 0101 | 9 | 1001 | D | 1101 |
| 2 | 0010 | 6 | 0110 | A | 1010 | E | 1110 |
| 3 | 0011 | 7 | 0111 | B | 1011 | F | 1111 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Float** | **Знак** | **Порядок** | | | | | | | | **Мантисса** | | | | | | | | | | | | | | | | | | | | | | |
| номер | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| число | **1** | **1** | 0 | 0 | 0 | 0 | **1** | **1** | 0 | 0 | **1** | **1** | **1** | 0 | **1** | **1** | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **0x** | **C** | | | | **3** | | | | **3** | | | | **B** | | | | **4** | | | | **0** | | | | **0** | | | | **0** | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Double** | **знак** | **Порядок** | | | **Мантисса** | | | | | | | | | | | | |
| номер | 63 | |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** | **1** | 0 | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 51 | 50 | 49 | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | 0 | **1** | **1** | **1** | 0 | **1** | **1** | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | |
| число | **1** |
| **0x** | **С** | | **0** | **6** | **7** | **6** | **8** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

|+465,62510| = 1110 1000 1,1012 = 1,1101 0001 1012 \* 28

рс8 = 8 + (28 – 1 - 1) = 8 + 127 = 13510 = 1000 01112

рс11= 8 + (211 – 1 - 1) = 8 + 1023 = 103110 = 1000 0000 1112

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Float** | **Знак** | **Порядок** | | | | | | | | **Мантисса** | | | | | | | | | | | | | | | | | | | | | | |
| номер | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| число | **0** | **1** | 0 | 0 | 0 | 0 | **1** | **1** | **1** | **1** | **1** | 0 | **1** | 0 | 0 | 0 | **1** | **1** | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **0x** | **4** | | | | **3** | | | | **E** | | | | **8** | | | | **D** | | | | **0** | | | | **0** | | | | **0** | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Double** | **знак** | **Порядок** | | | **Мантисса** | | | | | | | | | | | | |
| номер | 63 | |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** | **1** | **1** | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 51 | 50 | 49 | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | **1** | **1** | 0 | **1** | 0 | 0 | 0 | **1** | **1** | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | |
| число | **0** |
| **0x** | **4** | | **0** | **7** | **D** | **1** | **A** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

б)

|-146,83610| = 1001 0010,1101 0110 0000 0100 0001 1000 1001 0011 0111 0100 1100 02 = 1, 0010 0101 1010 1100 0000 1000 0011 0001 0010 0110 1110 1001 1000 \* 27

рс8 = 7 + (28 – 1 - 1) = 7 + 127 = 13410 = 1000 01102

рс11= 7 + (211 – 1 - 1) = 7 + 1023 = 103010 = 1000 0000 1102

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Float** | **Знак** | **Порядок** | | | | | | | | **Мантисса** | | | | | | | | | | | | | | | | | | | | | | |
| номер | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| число | **1** | **1** | 0 | 0 | 0 | 0 | **1** | **1** | 0 | 0 | 0 | **1** | 0 | 0 | **1** | 0 | **1** | **1** | 0 | **1** | 0 | **1** | **1** | 0 | 0 | 0 | 0 | 0 | 0 | **1** | 0 | 0 |
| **0x** | **C** | | | | **3** | | | | **1** | | | | **2** | | | | **D** | | | | **6** | | | | **0** | | | | **4** | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Double** | **знак** | **Порядок** | | | **Мантисса** | | | | | | | | | | | | |
| номер | 63 | |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** | **1** | 0 | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 51 | 50 | 49 | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | 0 | 0 | **1** | 0 | 0 | **1** | 0 | **1** | **1** | 0 | **1** | 0 | **1** | **1** | 0 | 0 | 0 | 0 | 0 | 0 | **1** | 0 | 0 | 0 | 0 | 0 | **1** | **1** | 0 | 0 | 0 | **1** | 0 | 0 | **1** | 0 | 0 | **1** | **1** | 0 | **1** | **1** | **1** | 0 | **1** | 0 | 0 | **1** | **1** | 0 | 0 | 0 | | | | | | | | | | | | | |
| число | **1** |
| **0x** | **C** | | **0** | **6** | **2** | **5** | **A** | **C** | **0** | **8** | **3** | **1** | **2** | **6** | **E** | **9** | **8** |

|+407,55510| = 1100 1011 1,1000 1110 0001 0100 0111 1010 1110 0001 0100 0111 10112 = 1, 1001 0111 1000 1110 0001 0100 0111 1010 1110 0001 0100 0111 10112 \* 28

рс8 = 8 + (28 – 1 - 1) = 8 + 127 = 13510 = 1000 01112

рс11= 8 + (211 – 1 - 1) = 8 + 1023 = 103110 = 1000 0000 1112

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Float** | **Знак** | **Порядок** | | | | | | | | **Мантисса** | | | | | | | | | | | | | | | | | | | | | | |
| номер | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| число | **0** | **1** | 0 | 0 | 0 | 0 | **1** | **1** | **1** | **1** | 0 | 0 | **1** | 0 | **1** | **1** | **1** | **1** | 0 | 0 | 0 | **1** | **1** | **1** | 0 | 0 | 0 | 0 | **1** | 0 | **1** | 0 |
| **0x** | **4** | | | | **3** | | | | **C** | | | | **B** | | | | **C** | | | | **7** | | | | **0** | | | | **A** | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Double** | **знак** | **Порядок** | | | **Мантисса** | | | | | | | | | | | | |
| номер | 63 | |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** | **1** | **1** | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 51 | 50 | 49 | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | **1** | 0 | 0 | **1** | 0 | **1** | **1** | **1** | **1** | 0 | 0 | 0 | **1** | **1** | **1** | 0 | 0 | 0 | 0 | **1** | 0 | **1** | 0 | 0 | 0 | **1** | **1** | **1** | **1** | 0 | **1** | 0 | **1** | **1** | **1** | 0 | 0 | 0 | 0 | **1** | 0 | **1** | 0 | 0 | 0 | **1** | **1** | **1** | **1** | 0 | **1** | **1** | | | | | | | | | | | | | |
| число | **0** |
| **0x** | **4** | | **0** | **7** | **9** | **7** | **8** | **E** | **1** | **4** | **7** | **A** | **E** | **1** | **4** | **7** | **B** |

**2.7 Преобразовать шестнадцатеричный восьмибайтный и четырехбайтный коды в число с плавающей запятой**

а) **C329500016**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Знак** | **Порядок** | | | | | | | | **Мантисса** | | | | | | | | | | | | | | | | | | | | | | |
| **0x** | **C** | | | | **3** | | | | **2** | | | | **9** | | | | **5** | | | | **0** | | | | **0** | | | | **0** | | | |
| число | **1** | **1** | 0 | 0 | 0 | 0 | **1** | **1** | 0 | 0 | **1** | 0 | **1** | 0 | 0 | **1** | 0 | **1** | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| номер | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

p = 134 – (28 – 1 - 1) = 134 – 127 = 7,

|A| = 1,0101 0010 1012 \* 27 = 1010 1001,01012 = 169,312510

**А = -169,312510**

**41ED800016**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Знак** | **Порядок** | | | | | | | | **Мантисса** | | | | | | | | | | | | | | | | | | | | | | |
| **0x** | **4** | | | | **1** | | | | **E** | | | | **D** | | | | **8** | | | | **0** | | | | **0** | | | | **0** | | | |
| число | **0** | **1** | 0 | 0 | 0 | 0 | 0 | **1** | **1** | **1** | **1** | 0 | **1** | **1** | 0 | **1** | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| номер | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |

p = 131 – (28 – 1 - 1) = 131 – 127 = 4,

|A| = 1,1101 10112 \* 24 = 1110 1,10112 = 29,687510

**A = +29,687510**

б) **C07366000000000016**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Double** | **знак** | **Порядок** | | | **Мантисса** | | | | | | | | | | | | |
| номер | 63 | |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** | **1** | **1** | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 51 | 50 | 49 | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | 0 | 0 | **1** | **1** | 0 | **1** | **1** | 0 | 0 | **1** | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | |
| число | **0** |
| **0x** | **C** | | **0** | **7** | **3** | **6** | **6** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

p = 1031 – (211 – 1 - 1) = 1031 – 1023 = 8,

|A| = 1,0011 0110 0112 \* 28 = 1001 1011 0, 0112 = 310,37510

**A = -310,37510**

**405FA7000000000010**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Double** | **знак** | **Порядок** | | | **Мантисса** | | | | | | | | | | | | |
| номер | 63 | |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** | 0 | **1** | | | | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 51 | 50 | 49 | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | | **1** | **1** | **1** | **1** | **1** | 0 | **1** | 0 | 0 | **1** | **1** | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | | | | | | | | |
| число | **0** |
| **0x** | **4** | | **0** | **5** | **F** | **A** | **7** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

p = 1029 – (211 – 1 - 1) = 1029 – 1023 = 6,

|A| = 1,1111 1010 01112 \* 26 = 1111 110,1001 112 = 126,60937510

**A = +126,60937510**