**Домашнее задание 8. Дискретная математика.**

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**Вариант 13.**

A = 8.2

B = 0.45

1. **Формат *Ф1***

*А* = (8.2)10 = (8.(3))16 = (0.8(3))16 · 161

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

*В* = (0.45)10 = (0.7(3))16 = (0.7(3))16 · 160

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 1 |

1. **Формат *Ф2***

*А* = (8.2)10 = (1000.001(1001))2 = (0.10000011)2 · 24

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |

*В* = (0.45)10 = (0.011(1001))2 = (0.11100110)2 · 2-1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |

**Формат Ф2**

*XC* = *XA – XB + d*

*d* + P*C* = **P*A* + *d* – PB –d** *+ d*

**P*C***

*XC* = 4 – (-1) + 128 = 133

P*C* = 5

|  |  |  |  |
| --- | --- | --- | --- |
| **N шага** | **Действие** | **Делимое** | **Частное** |
| **0** | *МА*  [-*МB*]доп  *R0* | **0 1 0 0 0 0 0 1 1**  **1 1 0 0 0 1 1 0 1**  **0 0 0 0 1 0 0 0 0** | **0 0 0 0 0 0 0 0**  **0 0 0 0 0 0 0 1** |
| **1** | ←*R0*  [-*МB*]доп  *R1* | **0 0 0 1 0 0 0 0 0**  **1 1 0 0 0 1 1 0 1**  **1 1 0 1 0 1 1 0 1** | **0 0 0 0 0 0 1 0**  **0 0 0 0 0 0 1 0** |
| **2** | ←*R1*  *МB* пр  *R2* | **1 0 1 0 1 1 0 1 0**  **0 0 1 1 1 0 0 1 1**  **1 1 1 0 0 1 1 0 1** | **0 0 0 0 0 1 0 0**  **0 0 0 0 0 1 0 0** |
| **3** | ←R2  *МB* пр  R3 | **1 1 0 0 1 1 0 1 0**  **0 0 1 1 1 0 0 1 1**  **0 0 0 0 0 1 1 0 1** | **0 0 0 0 1 0 0 0**  **0 0 0 0 1 0 0 1** |
| **4** | ←*R3*  [-*МB*]доп  *R4* | **0 0 0 0 1 1 0 1 0**  **1 1 0 0 0 1 1 0 1**  **1 1 0 1 0 0 1 1 1** | **0 0 0 1 0 0 1 0**  **0 0 0 1 0 0 1 0** |
| **5** | ←*R4*  *МB* пр  *R5* | **1 0 1 0 0 1 1 1 0**  **0 0 1 1 1 0 0 1 1**  **1 1 1 0 0 0 0 0 1** | **0 0 1 0 0 1 0 0**  **0 0 1 0 0 1 0 0** |
| **6** | ←*R*5  *МB* пр  *R6* | **1 1 0 0 0 0 0 1 0**  **0 0 1 1 1 0 0 1 1**  **1 1 1 1 1 0 1 0 1** | **0 1 0 0 1 0 0 0**  **0 1 0 0 1 0 0 0** |
| **7** | ←*R6*  *МB* пр  *R7*  Mc | **1 1 1 1 0 1 0 1 0**  **0 0 1 1 1 0 0 1 1**  **0 0 1 0 1 1 1 0 1** | **1 0 0 1 0 0 0 1**  **1 0 0 1 0 0 0 1** |

С*\** = (0.10010001)2 · 25 = (10010.001)2 = 18.125

СТ = 18.(2) (точное значение).

Определим абсолютную и относительную погрешности результата:

Δ*С* = 18.125 – 82,5 = -0.09722222

δ*С* = · 100% = 0.53%

Погрешность вызвана неточным представлением операндов.

*XC* = *XA – XB + d*

*d* + P*C* = **P*A* + *d* – PB –d** *+ d*

**P*C***

*XC* = 1 – 0 + 64 = 65

P*C* = 1

|  |  |  |  |
| --- | --- | --- | --- |
| **N шага** | **Действие** | **Делимое** | **Частное** |
| **0** | *МА*  [-*МB*]доп  *R*0 |  |  |
| **1** | ←*R*0  [-*МB*]доп  *R*1 |  |  |
| **2** | ←*R*1  *МB* пр  *R*2 |  |  |
| **3** | ←*R*2  [*-МB*] доп  *R*3 |  |  |
| **4** | ←R3  *МВ* пр  *R*4 |  |  |
| **5** | ←*R*4  *МB* пр  *R*5 |  |  |
| **6** | ←*R*5  [-*МB*] пр  *R*6 |  |  |
| **7** | ←*R*6  *МB* пр  *R*7  *МС*→ |  |  |