**Дискретная математика**

Домашнее задание №3

«Вычитание целых чисел»

Вариант №112

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Варианты задания

|  |  |
| --- | --- |
| ***A*** | ***B*** |
| 103 | 17 |

А<B

A = 103

B = 17

Ход работы

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *А* > 0, *B* > 0. A < B, B – A | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *А*пр. | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |  | 103 |  | 103 |
| *В*пр. | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |  | 17 |  | 17 |
| *С*пр. | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |  | 86 |  | 86 |

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| *А* < 0, *B* > 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *A*доп. | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |  | -103 |  | 153 |
| *B*пр. | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |  | 17 |  | 17 |
| *C*доп. | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |  |  |  | 136 |
| *C*пр. | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |  | -120 |  |  |

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| *А* > 0, *B* < 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *A*пр. | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |  | 103 |  | 103 |
| *B*доп. | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |  | -17 |  | 239 |
| *C*пр. | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 |  | 120 |  | 120? |

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| Для беззнаковой интерпретации результат неверен вследствие возникающего заёма из разряда за пределами формата |

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| *А* < 0, *B* < 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *A*доп. | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |  | -103 |  | 153 |
| *B*доп. | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 |  | -17 |  | 239 |
| *C*доп. | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |  |  |  | 170? |
| *C*пр. | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |  | -86 |  |  |

1. Правило для подбора выглядит следующим образом:

*А + В* > 128, значит 128 – *А < В* < 127

*А* = 103 (неизменно), *В* = 40 (подбираем).

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| *А* < 0, *B* > 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *A*доп. | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |  | -103 |  | 25 |
| *B*пр. | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |  | 40 |  | 40 |
| *C*пр. | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 1 |  | 113? |  | 125? |

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| *А* > 0, *B* < 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *A*пр. | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 |  | 103 |  | 103 |
| *B*доп. | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 |  | -40 |  | 215 |
| *C*доп. | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |  |  |  | 144? |
| *C*пр. | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |  | -112? |  |  |

Для знаковой интерпретации результат некорректен вследствие возникающего переполнения, для беззнаковой интерпретации результат некорректен из-за возникающего заёма из старшего разряда

1. Значение числа *В* фиксируем *(В* = 45), а значение *А* подбираем согласно формуле *А + В* = 128, благодаря которой при вычитании из положительного числа отрицательного будет фиксироваться переполнение, а при вычитании из отрицательного числа положительного не будет. Тогда *А* = 83.

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| *А* > 0, *B* < 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *A*пр. | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 |  | 83 |  | 83 |
| *B*доп. | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 |  | -45 |  | 210 |
| *C.* | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 |  | -97 |  | 127? |

Результат беззнаковой интерпретации некорректен вследствие возникающего заёма из разряда за пределами формата, для знаковой интерпретации результат некорректен из-за переполнения.

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| *А* < 0, *B* > 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *A*доп. | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 |  | -83 |  | 172 |
| *B*пр. | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 |  | 45 |  | 45 |
| *C*. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |  | -127 |  | 127 |