**Дискретная математика**

Домашнее задание №3

«Вычитание целых чисел»

Вариант № 17

Выполнил: Садовой Григорий Владимирович (гр. P3107)

Варианты задания

|  |  |
| --- | --- |
| ***A*** | ***B*** |
| 36 | 89 |

Ход работы

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| *А* > 0, *B* > 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *A*пр. | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |  | 36 |  | 36 |
| *B*пр. | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |  | 89 |  | 89 |
| *C*доп. | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 |  |  |  | 203? |
| *C*пр. | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 |  | -53 |  |  |

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| CF=1, | ZF=0, | PF=0, | AF=1, | SF=1, | OF=0. |

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

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| *А* > 0, *B* < 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *А*пр. | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |  | 36 |  | 36 |
| *B*доп. | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |  | -89 |  | 167 |
| *С*пр. | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |  | 125 |  | 125? |

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| CF=1, | ZF=0, | PF=1, | AF=1, | SF=0, | OF=0. |

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| Для БзИ результат неверен вследствие возникающего заема из разряда за пределами формата. |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *А <* 0, *B >* 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *А*доп. | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 |  | -36 |  | 220 |
| *B*пр. | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |  | 89 |  | 89 |
| *С*доп. | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |  |  |  | 131 |
| *С*пр. | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 |  | -125 |  |  |

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| CF=0, | ZF=0, | PF=0, | AF=0, | SF=1, | OF=0. |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *А <* 0, *B <* 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *А*доп. | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 |  | -36 |  | 220 |
| *B*доп. | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |  | -89 |  | 167 |
| *С*пр. | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 1 |  | 53 |  | 53 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

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| CF=0, | ZF=0, | PF=1, | AF=0, | SF=0, | OF=0. |

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1. Правилодля подбора выглядит следующим образом:

*А + В* > 128, значит 127 *> B* > 128 - *A*, пусть *В* = 93.

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| *А <* 0, *B >* 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *А*доп. | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 0 |  | -36 |  | 220 |
| *B*пр. | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 |  | 93 |  | 93 |
| *С*пр. | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |  | 127? |  | 127 |

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| CF=0, | ZF=0, | PF=0, | AF=1, | SF=0, | OF=1. |

Для ЗИ результат неверен вследствие возникающего переполнения

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *А >* 0, *B <* 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *А*пр. | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 |  | 36 |  | 36 |
| *B*доп. | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |  | -93 |  | 152 |
| *С*доп. | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |  |  |  | 129? |
| *С*пр. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |  | -127? |  |  |

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| CF=1, | ZF=0, | PF=1, | AF=0, | SF=1, | OF=1. |

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| Для ЗИ результат является некорректным вследствие переполнения формата, для БзИ результат неверен вследствие возникающего заема из разряда за пределами формата. |

1. Значение числа *В* фиксируем (*В* = 89), а значение *А* подбираем согласно формуле *А + В* = 128, благодаря которой при вычитании из положительного числа отрицательного будет фиксироваться переполнение, а при вычитании отрицательного числа из положительного не будет. Тогда *А* = 39.

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| *А >* 0, *B <* 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *А*пр. | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |  | 39 |  | 39 |
| *B*доп. | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |  | -89 |  | 167 |
| *С*доп. | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | -128? |  | 128? |

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| --- | --- | --- | --- | --- | --- |
| CF=1, | ZF=0, | PF=0, | AF=0, | SF=1, | OF=1. |

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| Для ЗИ результат является некорректным вследствие переполнения формата, для БзИ результат неверен вследствие возникающего заема из разряда за пределами формата. |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *А <* 0, *B >* 0. | | | | | | | | | Интерпретации | | | |
|  |  |  |  |  |  |  |  |  |  | Знаковая |  | Беззнаковая |
| *А*доп. | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |  | -39 |  | 217 |
| *B*пр. | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |  | 89 |  | 89 |
| *С*доп. | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |  | -128 |  | 128 |

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| --- | --- | --- | --- | --- | --- |
| CF=0, | ZF=0, | PF=0, | AF=0, | SF=1, | OF=0. |

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| Результаты знаковой и беззнаковой интерпретаций корректны. |