**Test Case**

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| **ID/Title:** | Input & Output test |
| **Type:** | Input validation and Calculation |
| **For System:** | Rational\_Number\_Calculator |
| **Use Case:** | Test operator functions and input validation |
| **Prerequisites:** | Environment to run a C++ program. |

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| **Input validation Test** | | | |
| **Test #** | **Input entered** | **Expected Result** | **Result** |
| 1 | s | Asking for new input | Asking for new input |
| 2 | 2/ | Asking for new input | Asking for new input |
| 3 | 3/0 | Asking for new input | Asking for new input |
| 4 | 0/0 | Asking for new input | Asking for new input |
| 5 | -0/0 | Asking for new input | Asking for new input |
| 6 | /5 | Asking for new input | Asking for new input |
| 7 | -/2 | Asking for new input | Asking for new input |
| 8 | f/5 | Asking for new input | Asking for new input |
| 9 | + | Asking for new input | Asking for new input |
| 10 | +5/2 | Asking for new input | Asking for new input |
| 11 | 2/+5 | Asking for new input | Asking for new input |
| 12 | 9/f | Asking for new input | Asking for new input |
| 13 | 0/j | Asking for new input | Asking for new input |
| 14 | 2.5 | Asking for new input | Asking for new input |
| 15 | 10+4 | Asking for new input | Asking for new input |
| 16 | 5\*4 | Asking for new input | Asking for new input |
| 17 | 00000 | Valid input | Valid input |
| 18 | 25 | Valid input | Valid input |
| 19 | -25 | Valid input | Valid input |
| 20 | -00025 | Valid input | Valid input |
| 21 | -0 | Valid input | Valid input |
| 22 | -5/23 | Valid input | Valid input |
| 23 | 5/-25 | Valid input | Valid input |
| 24 | 0/-9 | Valid input | Valid input |
| 25 | 13/5 | Valid input | Valid input |
| 26 | 6/12 | Valid input | Valid input |
| 27 | 9/000051 | Valid input | Valid input |
| 28 | 999999999 | Valid input | Valid input |
| 29 | 9999999999 | Program Breaks | Program Breaks |
| 30 | 8/9/2 | Asking for new input | Asking for new input |
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| **Operator Functionality Test** | | | | |
| **Test #** | **Numbers** | **Operator** | **Expected Result** | **Actual Result** |
| 1 | 2/5 & 1/4 | + | 13/20 | 13/20 |
| 2 | - | 3/20 | 3/20 |
| 3 | \* | 1/10 | 1/10 |
| 4 | / | 8/5 | 8/5 |
| 5 | == | false | false |
| 6 | > | true | true |
| 7 | < | false | false |
| 8 | -1/2 & -4/8 | + | -1/1 | -1/1 |
| 9 | - | 0 | 0 |
| 10 | \* | 1/4 | 1/4 |
| 11 | / | 1/1 | 1/1 |
| 12 | == | true | true |
| 13 | > | false | false |
| 14 | < | false | false |
| 15 | -2/6 & 3/15 | + | -2/15 | -2/15 |
| 16 | - | -8/15 | -8/15 |
| 17 | \* | -1/15 | -1/15 |
| 18 | / | -5/3 | -5/3 |
| 19 | == | false | false |
| 20 | > | false | false |
| 21 | < | true | true |
| 22 | 5/13 & -8/3 | + | -89/39 | -89/39 |
| 23 | - | 119/39 | 119/39 |
| 24 | \* | -40/39 | -40/39 |
| 25 | / | -15/104 | -15/104 |
| 26 | == | false | false |
| 27 | > | true | true |
| 28 | < | false | false |
| 29 | 7/19 & 0 | + | 7/19 | 7/19 |
| 30 | - | 7/19 | 7/19 |
| 31 | \* | 0 | 0 |
| 32 | / | Division by 0 error!!! | Division by 0 error!!! |
| 33 | == | false | false |
| 34 | > | true | true |
| 35 | < | false | false |
| 36 | 0 & -3/14 | + | -3/14 | -3/14 |
| 37 | - | 3/14 | 3/14 |
| 38 | \* | 0 | 0 |
| 39 | / | 0 | 0 |
| 40 | == | false | false |
| 41 | > | true | true |
| 42 | < | false | false |
| 43 | 0 & -0 | + | 0 | 0 |
| 44 | - | 0 | 0 |
| 45 | \* | 0 | 0 |
| 46 | / | Division by 0 error!!! | Division by 0 error!!! |
| 47 | == | true | true |
| 48 | > | false | false |
| 49 | < | false | false |