一、测试功能

1.标准计算界面自适应测试

伸缩窗口大小，界面根据窗口形状有两种布局，显示皆正常。

2. 科学计算功能测试

|  |  |
| --- | --- |
| 序号 | 功能 |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |
| 5 |  |
| 6 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 11 |  |
| 12 |  |
| 13 |  |
|  |  |

二、边界值测试

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| --- | --- | --- |
|  | | |
| 编号 | 输入 | 输出 |
| 1 | 1+1 | 2 |
| 2 | 1+-1 | 0 |
| 3 | 1+0 | 1 |
| 4 | -1+-1 | -2 |
| 5 | 0+-1 | -1 |
| 6 | 0.1+0.1 | 0.2 |

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|  | | |
| 编号 | 输入 | 输出 |
| 1 | 1-1 | 0 |
| 2 | 2-1 | 1 |
| 3 | 1-2 | -1 |
| 4 | 1—1 | 2 |
| 5 | 1-0 | 1 |
| 6 | -1-0 | -1 |
| 7 | -1—1 | 0 |
| 8 | -1-1 | -2 |
| 9 | -1--2 | 1 |

|  |  |  |
| --- | --- | --- |
|  | | |
| 编号 | 输入 | 输出 |
| 1 | 7 \* 2 | 14 |
| 2 | 7 \* 0 | 0 |
| 3 | -7\*-2 | 14 |
| 4 | 7\*-2 | -14 |
| 5 | -2\*0 | 0 |
| 6 | 0\*0 | 0 |

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| --- | --- | --- |
|  | | |
| 编号 | 输入 | 输出 |
| 1 | 3/2 | 1.5 |
| 2 | 2/3 | 0.6666666666667 |
| 3 | 0/3 | 0 |
| 4 | 3/0 | Can not divide by zer |
| 5 | -3/2 | -1.5 |
| 6 | -3/-2 | 1.5 |
| 7 | 4/2 | 2 |

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| --- | --- | --- |
|  | | |
| 编号 | 输入 | 输出 |
| 1 |  | 0 |
| 2 |  | 0.08 |
| 3 |  | -0.08 |
| 4 |  | 1 |
| 5 |  | -1 |
| 6 |  | 1.01 |
|  |  |  |

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| --- | --- | --- |
|  | | |
| 编号 | 输入 | 输出 |
| 1 | 8√ | 2.828427124746 |
| 2 | 4√ | 2 |
| 3 | 0√ | 0 |
| 4 | 5.5√ | 2.345207879911 |
| 5 | -5√ | Invalid input |

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| --- | --- | --- |
|  | | |
| 编号 | 输入 | 输出 |
| 1 | 3 | 9 |
| 2 | 0 | 0 |
| 3 | 0.1 | 0.01 |
| 4 | -5 | 25 |

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| --- | --- | --- |
|  | | |
| 编号 | 输入 | 输出 |
| 1 | 0 | Cannot divided by zero |
| 2 | 1 | 1 |
| 3 | 8 | 0.125 |
| 4 | -1 | -1 |
| 5 | -8 | -0.125 |

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| --- | --- | --- |
|  | | |
| 编号 | 输入 | 输出 |
| 1 | 0 | 0 |
| 2 | -1 | 1 |
| 3 | 1 | -1 |

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| --- | --- | --- |
|  | | |
| 编号 | 输入 | 输出 |
| 1 | 1 MS | M = 1 |
| 2 | 0 MS | M = 0 |
| 3 | -1 MS | M = -1 |

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| --- | --- | --- |
|  | | |
| 编号 | 输入 | 输出 |
| 1 | M = 1, 5M+ | M=6 |
| 2 | M = 1, 0M+ | M=1 |
| 3 | M=0, -1M+ | M= -1 |

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| 编号 | 输入 | | 输出 |
| 1 | | M = 1, 5M- | M=-4 |
| 2 | | M = 1, 0M- | M=1 |
| 3 | | M = -1, 5M- | M=-6 |
| 4 | | M = -1, -1M- | M=0 |
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三、等价类测试

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| --- | --- | --- | --- |
|  | | | |
| 编号 | 输入 | 输出 | 等价类 |
| 1 | 1+1 | 2 | 正+正 |
| 2 | 1+-2 | -1 | 正+负 |
| 3 | -1+-1 | -2 | 负+负 |
| 4 | 1+0 | 1 | 正+零 |
| 5 | -1+0 | -1 | 负+零 |
| 6 | 0+0 | 0 | 零+零 |

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| --- | --- | --- | --- |
|  | | | |
| 编号 | 输入 | 输出 | 等价类 |
| 1 | 2-1 | 1 | 正-正 |
| 2 | -1-2 | -3 | 负-负 |
| 3 | 2-0 | 2 | 正-零 |
| 4 | -1-0 | -1 | 负-零 |
| 5 | 1-0 | 1 | 正-零 |
| 6 | -1- -2 | 1 | 负-负 |
| 7 | 0-1 | -1 | 零-正 |
| 8 | 0—1 | 1 | 零-负 |
| 9 | 0-0 | 0 | 零-零 |

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| --- | --- | --- | --- |
|  | | | |
| 编号 | 输入 | 输出 | 等价类 |
| 1 | 7 \* 2 | 14 | 正\*正 |
| 2 | 7\*-2 | -14 | 正\*负 |
| 3 | -7\*-2 | 14 | 负\*负 |
| 4 | 0\*0 | 0 | 零\*零 |
| 5 | -2\*0 | 0 | 负\*零 |
| 6 | 2\*0 | 0 | 正\*零 |
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| --- | --- | --- | --- |
|  | | | |
| 编号 | 输入 | 输出 | 等价类 |
| 1 | 3/2 | 1.5 | 正/正 |
| 2 | 4/-2 | -2 | 正/负 |
| 3 | 3/0 | Invalid input | 正/零 |
| 4 | -4/2 | -2 | 负/正 |
| 5 | -4/-2 | 2 | 负/负 |
| 6 | -2/0 | Invalid input | 负/零 |
| 7 | 0/2 | 0 | 零/正 |
| 8 | 0/-2 | 0 | 零/负 |
| 9 | 0/0 | Invalid input | 零/零 |
|  |  |  |  |

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| --- | --- | --- | --- |
|  | | | |
| 编号 | 输入 | 输出 | 等价类 |
| 1 | 3 | 0.03 | 正 |
| 2 | -3 | -0.03 | 负 |
| 3 | 0 | 0 | 零 |

|  |  |  |  |
| --- | --- | --- | --- |
|  | | | |
| 编号 | 输入 | 输出 | 等价类 |
| 1 | 0 | 0 | 零 |
| 2 | 4 | 2 | 正 |
| 3 | -4 | Invalid input | 负 |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | | | |
| 编号 | 输入 | 输出 | 等价类 |
| 1 | 0 | 0 | 零 |
| 2 | 2 | 4 | 正 |
| 3 | -2 | 4 | 负 |

|  |  |  |  |
| --- | --- | --- | --- |
|  | | | |
| 编号 | 输入 | 输出 | 等价类 |
| 1 | 0 | Cannot divided by zeor | 零 |
| 2 | 2 | 0.5 | 正 |
| 3 | -2 | -0.5 | 负 |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | | | |
| 编号 | 输入 | 输出 | 等价类 |
| 1 | 1 | -1 | 正 |
| 2 | -1 | 1 | 负 |
| 3 | 0 | 0 | 零 |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | | | |
| 编号 | 输入 | 输出 | 等价类 |
| 1 | 0 MS | M=0 | 零 |
| 2 | 3 MS | M=3 | 正 |
| 3 | -3 MS | M=-3 | 负 |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | | | |
| 编号 | 输入 | 输出 | 等价类 |
| 1 | M=0, 3M+ | M=3 | M=0,正M+ |
| 2 | M=0,-3M+ | M=-3 | M=0,负M+ |
| 3 | M=0,0M+ | M=0 | M=0,零M+ |
| 4 | M=1, 3M+ | M=4 | M正,正M+ |
| 5 | M=1,-3M+ | M=-2 | M正,负M+ |
| 6 | M=1,0M+ | M=1 | M正,零M+ |
| 7 | M=-1, 3M+ | M=2 | M负,正M+ |
| 8 | M=-1,-3M+ | M=-4 | M负,负M+ |
| 9 | M=-1,0M+ | M=-1 | M负,零M+ |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | | | |
| 编号 | 输入 | 输出 | 等价类 |
| 1 | M=0, 3M- | M=-3 | M=0,正M+ |
| 2 | M=0,-3M- | M=3 | M=0,负M+ |
| 3 | M=0,0M- | M=0 | M=0,零M+ |
| 4 | M=1, 3M- | M=-2 | M正,正M+ |
| 5 | M=1,-3M- | M=4 | M正,负M+ |
| 6 | M=1,0M- | M=1 | M正,零M+ |
| 7 | M=-1, 3M- | M=-4 | M负,正M+ |
| 8 | M=-1,-3M- | M=2 | M负,负M+ |
| 9 | M=-1,0M- | M=-1 | M负,零M+ |

四、小结

所有测试用例皆符合期望输出。

测试时发现，退回键只能退回已输入的数字，不能退回运算符号，设计不够人性化。标准计算器没有括号，不能连续运算，只能先把上一步算好才能做下一步。