

Test cases of normal version:

Statement:

My platform uses 64 bit CPU (intel Core i5-8300H), the programming language is Java, and the code is compiled on IntelliJ IDEA Community Edition 2020.3.

Some numbers in the test cases, like: -82147953548159344, have too many digits so the int and long type variables cannot handle these numbers. Therefore, I use java.math.BigInteger to handle extremely big or small number in test cases.

The BigInteger is only used to show the extremely big and small numbers. All the functions of BigInteger I use can be replaced by operator + - * / % < > and = if the variables are int or long (The BigInteger cannot use these normal operators, they have to use functions like "BigInteger.add()", ".multiply()" to execute operation). None of them have other functions.

Just in case using BigInteger is not allowed in this project, I also submitted normal version of AlaCarte and Rectangular, which don't use BigInteger. So if using java.math.BigInteger is not allowed, please grade the normal version programs. However, some test cases that have extremely big or small number cannot be tested in normal version because the expression range of int and long variables is not big enough in java.

If using BigInteger is allowed, please ignore these codes. Thank you! :)

```
System.out.println("The result of " + a + " * " + b);
System.out.println();
a = 45952456856498465985L;
b = 9865465198654651986L;
System.out.println(a * b);
System.out.println();
```

Long number too large

Error occurs when input is too big or small.

Problem 1:

```
The result of test case 1 is:
3 7 9

The result of test case 2 is:
1 2 7 9

The result of test case 3 is:
1 1 7 7 10 10 15 18

The result of test case 4 is:
1 3 5 5 5 5 6 8 10 12 15 16 17 17 18 20 21 25 28
```

Problem 2 AlaCarte Multiplication:

```
The result of 7000 * 7294 = 51058000
```

```
The result of 25 * 5038385 = 125959625
```

```
The result of 59724 * 783 = 46763892
```

```
The result of 8516 * -82147953548159344 = 1404302384837987904
```

The result of case 4 is wrong because even though long variable can handle the input -82147953548159344, when it is multiplied, the value gets bigger an the long variable can no longer handle it, so the result is wrong because itself has so many digits.

Problem 2 Rectangle Multiplication:

```
AlaCarte Multiplication
```

```
The result of 7000 * 7294 = 51058000
```

```
The result of 25 * 5038385 = 125959625
```

```
The result of 59724 * 783 = 46763892
```

```
The result of 8516 * -82147953548159344 = 629182016
```

The result of case 4 is wrong is because the same reason I mentioned in AlaCarte Multiplication.