

Homework 3: Calculator

Create a calculator program in Java. It will accept 3 strings from the user: an integer, followed by a symbol (+, -, * or /), followed by a second integer. (Alternatively, it may accept a single string with all this information—see below.) It will then perform the correct math operation (addition, subtraction, multiplication, or division) on the two integers, printing out the answer.

In the case of division, you must print out both the quotient and the remainder. So if the user wants $13 / 5$, you must print `2 R 3` (or something similar). If the user gives a nonsense symbol, you should print a polite error message and exit. Also, beware of the divide-by-zero error. In such a case, you must print out a reasonable error message instead of performing the operation.

The class should be called `Calculator`. The final output should look something like this:

```
Welcome to the calculator!
Please enter an integer: 6
Please enter a math operation: *
Please enter a second integer: 8

Thank you. 6 * 8 = 48
```

Some hints:

- *Be sure to test many different combinations!* Just because it worked once, it doesn't mean that you are done.
- You don't need to use a different `String` or a different `Scanner` every time you receive an input. Doing so is a waste.
- If you use a `char` and add it to an `int`, the answer you get might be surprising. For example, the `char '+'` will get treated like a 43, because `+` happens to be symbol #43 in the master table of `char` values. Look up the Wikipedia page on "ASCII" for details, if you are curious.
- As your programs become more complicated, style and commenting are even more important! Remember to comment well, use spacing to your advantage, and give your variables descriptive names.
- If you wish to use the `Scanner` methods `nextInt()` and `next()` instead of `nextLine()`, you can receive all the inputs on a single line (so long as the number, symbol, and number are separated by spaces). However, this is a little more difficult.