

**You task is as follows.**

1. Parse the mathematical expressions in the file "in.txt".
2. Evaluate each expression to get the result of the mathematical expression.
3. Write the original expression and the result to each line in an output file called "out.txt".
4. Lines in "out.txt" should appear in the same order as they occur in "in.txt".
5. The format of each line in the file "out.txt" is the original expression=result (see out.txt examples below)

**Each expression on each line of "in.txt" can consist of any of the following components.**

1. One or more operands which can be positive or negative integers.
2. One or more mathematical operations, which can be +, -, /, \* (addition, subtraction, division and multiplication).
3. Parenthesis characters "(" or ")". These are used to enclose a sub-expression.

**You can assume the following.**

1. There is one mathematical expression per line in "in.txt"
2. All mathematical operators are integer operators.
3. Parenthesis can be used to nest a sub expression inside another expression or sub expression on the same line.

Note that the normal operator precedence rules for JAVA operators should be used when evaluating expressions.

```
**** in.txt
Example of some expressions you could find "in.txt".
1+2
1-(1+2)
3*(1+4)
1+1/3
3*2/3
(1+1)*(3/2)
```

```
**** out.txt
Example of what should be in "out.txt" for the "in.txt" file given above.
1+2=3
1-(1+2)=-2
3*(1+4)=15
1+1/3=1
3*2/3=2
(1+1)*(3/2)=2
```

**You solution.**

1. Given the information above you should create your own "in.txt" file with enough example expressions to test your code.
2. You should make a reasonable effort to test that your code works well and you can optionally submit any unit tests that you write to test your code.
3. If you have to make any assumptions for your solution then you should add a file called ASSUMPTIONS.txt and state these assumptions clearly and briefly.
4. Your solution must be in JAVA and must include a runnable java class file (or runnable JAR file) and all the java source code for your solution.
5. You should also submit the "in.txt" file you used and the "out.txt" file you generated with your program from the same in.txt file.