Before you start

- Program in your favorite language.
- Send us your source file. Do not send `.pdf` or text files or project files.
- Please also add in the source file an instruction of how to build and run it.

Matrix multiplication

Please implement the mutiplication of two matrices for the following two cases:

1. each element in the matrix is a complex number(`a + bi`)
2. each element in the matrix is a triple(a0, a1, a2), the addition and multiplication between two triples are defined as follows:

`a0, a1, a2) + (b0, b1, b2) = (a0 + b0, a1 + b1, a2 + b2)`

`(a0, a1, a2) * (b0, b1, b2) = (a0 * b0, a1 * b1, a2 * b2)`

You need to design the data structures(complex, triple, matrix, etc) on your own. Use `float` as the basic data type in this question.

Arithmetic expression parsing

Please implement an arithmetic expression parser that can evaluate strings like `((1+sin(0))*(3.0+(4*5)))` to `23.0`.

Assumptions:

1. every binary operation `a+b` in the input expression are wrapped in a pair of parentheses `(a+b)`.

Requirements:

1. support the following operations:
    - `+`
    - `-`
    - `*`
    - `/`
    - `cos`
    - `sin`