

HW8 (Due 2018/05/14)

1. Write a C++ program to perform the on-line computation for arithmetic expressions and print out the result by a fraction  $\mathbf{a/b}$  in reduced form, where  $\mathbf{a}$  is the numerator and  $\mathbf{b}$  is the denominator. The arithmetic expression is composed of  $n$ -digit decimal integer operands and operators  $+$ ,  $-$ ,  $*$ , and  $/$ , where  $1 \leq n \leq 3$ .

Sample I/O 1: (The italics for program output and boldfaces for user input)

*Please input an expression: **1+2+3/4***

*The answer is 3/2.*

Sample I/O 2: (The italics for program output and boldfaces for user input)

*Please input an expression: **1-2-3/4***

*The answer is -1/1.*

**Bonus:**

A class Rational is described as follows:

```
class Rational
{
public:
    Rational();
    void setNumerator(int);
    void setDenominator(int);
    int getNumerator();
    int getDenominator();
    void addRational(int, int);
    void subRational(int, int);
    void mulRational(int, int);
    void divRational(int, int);
private:
    int Numerator;
    int Denominator;
}
```

The member functions should perform the corresponding operations and store the results in reduced form. You can get bonus if your program uses class Rational for arithmetic operations.