**Programming 2**

**(2018. 09. 25.)**

1. **Exercise**
   Write a Python class named Triangle constructed by the three side length. The class contains methods which calculates the perimeter and the area from the known information. Overload the addition, subtraction, equality, greater/less than or equal and not equal operators.

2. **Exercise**
   Write a Python class named Vector constructed by the *x* and *y* coordinates of the endpoint. Configure abs() to return the length of vector. It is possible to add, subtract and multiply any two vectors or real number. Compare two vectors based on their lengths.

3. **Exercise**
   Implement our own class to represent complex numbers. The constructor takes two arguments, representing the real and imaginary parts of the complex number. Define two methods inside the class, conjugate() and argz(), which will give us the complex conjugate and the argument of a complex number. Configure abs() to return the modulus of a complex number. It is possible to add any two complex numbers or add a real number to a complex number. Let's configure the + operator in such a way that it works for both cases. Similarly, you define the behavior for - and *. Now, we take care of the two operators, == and !=. It is also possible to raise a complex number to any power.

4. **Exercise**
   A Rational is represented by two integers, the numerator and the denominator. You can apply many of the numeric operators to Rational.