Homework: Class programming

Question 1: (50 points)

Complete the Python class **Rational** in the lecture. The source code "RationalNumber.py" can be downloaded from the lecture notes. Please make corrections of the "__sub__" function and add "__rsub__" function so that the following python codes work:

```
>>>from RationalNumber import *   #RationalNumber is the Python file name
>>>one_half = Rational(1,2)
>>>one_half – 1
>>>1 - one_half
```

Record the outputs.

Question 2: (50 points)

Every semester, students take a number of courses, and at the end of the semester, they get their final grades. Design a class called SemTranscript that stores the name of the student, list of courses taken by the student and the corresponding grades, and the average grade for that semester. Also, create a overloaded addition operator so that you can add two semester grades to get courses taken in two semesters and calculate the final grade for a year.

Note: In the overloaded operator, you can NOT just directly take an average of the grades of the two SemTanscript objectives to get the average of the final grade of the year.

Design a test case to (1) demonstrate your code and (2) test your code.