1) Create a class called `Rational` for performing arithmetic with fractions. Write a driver program to test your class.

Use integer variables to represent the `private` instance variables of the class—the numerator and the denominator. Provide a constructor method that enables an object of this class to be initialized when it is declared. The constructor should store the fraction in reduced form (i.e., the fraction would be stored in the object as 1 in the `numerator` and 2 in the `denominator`). Provide a no-argument constructor with default values in case no initializers are provided. Provide `public` methods for each of the following:

a) Addition of two `Rational` numbers. The result of the addition should be stored in reduced form.

b) Subtraction of two `Rational` numbers. The result of the subtraction should be stored in reduced form.

c) Multiplication of two `Rational` numbers. The result of the multiplication should be stored in reduced form.

d) Division of two `Rational` numbers. The result of the division should be stored in reduced form.

e) Printing `Rational` numbers in the form \( \frac{a}{b} \), where \( a \) is the `numerator` and \( b \) is the `denominator`.

f) Printing `Rational` numbers in floating-point format. (Consider providing formatting capabilities that enable the user of the class to specify the number of digits of precision to the right of the decimal point.)

2) Modify the `Time3` class of Fig. 8.5 to include the `tick` method that increments the time stored in a `Time3` object by one second. Also provide method `incrementMinute` to increment the minute and method `incrementHour` to increment the hour. The `Time3` object should always remain in a consistent state. Write a driver program that tests the `tick` method, the `incrementMinute` method and the `incrementHour` method to ensure that they work correctly. Be sure to test the following cases:

a) Incrementing into the next minute.

b) Incrementing into the next hour.

c) Incrementing into the next day (i.e., 11:59:59 PM to 12:00:00 AM).