1. Based on the class Point from Lab 3, define a class Vector describing a vector in two-dimensional space (https://mathinsight.org/vector_introduction), with thef fields being: two real numbers representing its coordinates, and a Point representing its tail. Implement the following public methods of the class:
   - the default constructor creating the zero vector with the tail (0,0);
   - the constructor with two parameters being Points (setting the tail to the first point, and computing vector coordinates);
   - the methods getTail, setTail, getCoordinate1, getCoordinate2, setCoordinate1, setCoordinate2
   - print method (printing the data of a vector)
   - the method getMagnitude computig the magnitude of the vector
   - operators + and – (addition and subtraction of vectors)
   - operators * in two versions, corresponding respectively to multiplying a vector by a real number, and to multiplying a real number by a vector,
   - a unary operator - computing the opposite vector
   - == operator

   and a program which tests all the capabilities.

2. Redefine the class Fraction (Lab 2) making its fields private, and methods public. Implement all the necessary getters and setters for the fields, and implement all the arithmetic operators on fractions (+, -, *, /) and all the comparison operators (>, <, >=, <=, ==).