Lab #1

NOTE: Code that does not compile will get a zero.

In this lab, you are asked to write three

1. Write a Java interface (Polynomials.java) for (single-variable) polynomials whose coefficients are of type `double` and whose exponents are of type `int` and non-negative. Include methods to

    - Return the degree of the polynomial
    - Return the coefficient for a given exponent
    - Evaluate the polynomial at a given value of x
    - Add two polynomials, returning their sum
    - Subtract two polynomials, returning their difference
    - Return the derivative of a polynomial

2. Write an array-based implementation of the polynomial interface (ArrayBasedPoly.java) from the previous problem. Polynomials should be represented in an array of doubles, ***indexed by exponent***.

3. Write a class for rational numbers (RationalNum.java). Include methods to add, subtract, multiply and divide. Override equals, and toString.