University of Cape Town ~ Department of Computer Science

Computer Science 1015F ~ 2007

Practical Test 2B

Time: 45 minutes

Write a program to calculate if a quadratic polynomial has real roots or not, and if the roots are the same (i.e., there is only one distinct root).

A quadratic polynomial is the function

$$f(x) = ax^2 + bx + c$$

First ask the user to enter 3 real values corresponding to the coefficients of the different terms. Then compute the value of the expression $b^2 - 4ac$. If it is greater than zero, the roots are real and distinct. If it is zero, the roots are real and equal. If it is less than zero, the roots are complex. Test for these conditions and output an appropriate message to the user.

Your program should not use object oriented techniques.

You may consult your paper notes and textbook, but no electronic resources. You may NOT use a search engine or consult any Web resources (including Vula) or files on your flash disk, hard drive, etc.

Submit the Java source file ONLY to Vula. Name your file **PTest2B.java**

Marking Guide:

- *Correctness: Input: 25%*
- *Correctness: Computation: 25%*
- *Correctness: Output: 25%*
- *Comments (Documentation): 25%*