

Due on Wed. Feb 2., 2010

Each student is required to do this assignment **individually**. Type all of your answers in an electronic file (you can use plain text or Microsoft Word), which includes your explanation and data of inputs and output. All computer programs should be saved in separated files. Send your answer sheet and program files to the course email account:

`cs0411@peace.lakeheadu.ca`

In the email, you should indicate your name, student ID, assignment number and a list of attachments. All the program files should be sent as attachments of the email.

Assignments which do not meet above requirement risk reduced marks or even no marks.

The grade of the assignment will depend on:

Documentation and readability: 20 %

Correctness: 80 %

Problem 1.

Write a program for solving general quadratic equations. When you run the program, the first output should be:

```
This is a program for solving quadratic equation Ax**2+Bx+C=0.  
Please input three real numbers A,B and C:
```

After the computer gets input, it will output the solutions. The output should be something like one of the following:

```
The quadratic equation 4x**2+(-6)x+2 = 0  
has two real solutions: 1.0 and 0.5
```

or

```
The quadratic equation x**2+x+1 = 0  
has two complex roots: -0.5+1.5i and -0.5-1.5i
```

or

```
The quadratic equation x**2-2x+1 = 0  
has two equaled roots: 1
```

or

Your input is a linear equation $6x-2=0$
The solution is: 3.0

or

There is no solution for your input

according to the different inputs. Run your program with the following inputs.

<i>A</i>	<i>B</i>	<i>C</i>
120	15	29
9	29	3
0	59	23
0	0	7.3
2	-40.0	200

Problem 2.

A computer supply company discounts the price of each of its products depending on the number of units bought and the price per unit. The discounts are given in the following table:

Number bought	Unit price (dollars)		
	0 - 10.00	10.01 -100.0	100.01 -
1 - 9	0%	2%	5%
10 - 19	5%	7%	9%
20 - 49	9%	15%	21%
50 - 99	14%	23%	32%
100 -	21%	32%	43%

Write a program that reads the number of units bought and the unit price and then calculates and prints the total full cost, the total amount of the discount and the total discounted cost.