

CS 2073-002 Computer Programming with Engineering Applications

Fall 2009

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Homework 3

Due by Oct 6 (Monday), 2009 (5:00pm)

!!!! NO LATE HOMEWORK WILL BE ACCEPTED !!!

Total 50 points

HW Question:

Write a C program that

1. Reads the coefficients (**double a, b, c**) of a quadratic equation $a*x^2 + b*x + c = 0$
2. Computes the roots of that equation (if exist), and
3. Prints out an appropriate msg with roots (if any).

Note that: You need to consider various cases (**see your math book**). In some math books, you will see the following cases:

Compute $d = 4*a*c - b^2$.

if $d < 0$, we have two real roots, find and print them

if $d = 0$, we have one root, find and print it

if $d > 0$, we have no root, just print that "no root"

What to return: **!!!! NO LATE HOMEWORK WILL BE ACCEPTED !!!**

Save your program as hw3.c, run it a few times and copy/paste the output into file output3.txt. THEN, go to WebCT, and submit your files **hw3.c**, and **output3.txt** before the deadline. When you are writing your C program, don't forget to include **/* COMMENTS */**

SAMPLE OUTPUT

```
Enter a b c of a*x*x + b*x + c = 0 : 0 1 2
There is a linear solution x=-2.000000
```

```
Enter a b c of a*x*x + b*x + c = 0 : 1 9 2
There are two real roots:
x1=-0.227998 x2=-8.772002
```

```
Enter a b c of a*x*x + b*x + c = 0 : 1 2 2
There are no real roots.
```

```
Enter a b c of a*x*x + b*x + c = 0 : 1 2 1
There is one real root: x1=-1.000000
```