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Assignment 10

- Title: Solving quad
- Problem Statement:
  Write 80387 ALP to find the root of the quadratic equation. All the possible cases must be considered in calculating the roots.
- Objective:
  To be able to solve mathematical problems in ALP.
- Outcome:
  I will be able to solve mathematical problems in ALP.
- Requirements

1) Core 2duo | i3 | i5 | i7
2) Linux 32 bit | 64 bit os
3) gedit | vi
4) NASM
5) GDB

- Theory:

Quadratic equation

$$ax^2 + bx + c = 0$$

Roots are:

$$\alpha_1 = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$$

$b^2-4ac > 0$ ⇒ Real & distinct roots
$b^2-4ac = 0$ ⇒ Real & repeated roots
$b^2-4ac < 0$ ⇒ imaginary roots

- Algorithm

1) Start
2) Accept a, b, c from user
3) Convent from ASCII to Hex
4) Put values of a, b, c in expression

$$\frac{-b + \sqrt{b^2-4ac}}{2a} \quad \& \quad \frac{-b - \sqrt{b^2-4ac}}{2a}$$

5) Convent the values from Hex to ASCII
6) Print values.
7) STOP

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- Test Cases:

	Input	Expected o/p	Actual o/p
1)	a=1, b=-5, c=6	root1 = 2 root2 = 3	Pass
2)	a=1 b=8 c=15	root1 = -3 root2 = -5	Pass

- Conclusion:
Roots of a quadratic equations are calculated using 80387 ALP.