King Saud University
College of Engineering
Civil Engineering Department

GE 209
Computer programming

Assignment #2

1. Write a program to read the coefficients A, B, C of a quadratic equation:

$$Ax^2 + Bx + C = 0$$

If A equal zero, $x = \frac{-C}{B}$. Otherwise If $\sqrt{B^2 - 4AC}$ is positive, $x_1, x_2 = \frac{-B \pm \sqrt{B^2 - 4AC}}{2A}$, and If the roots are complex, $x_1, x_2 = \frac{-B}{2A} \; i \pm \frac{\sqrt{-(B^2 - 4AC)}}{2A} \; j$. Print these values with appropriate literal.

2. For the following logic:

$$Y = \begin{cases} \sqrt{2X + 5X^2}\tan\theta & \text{for } i \le 0 \\ \frac{6\sin\theta}{2X} + e^X & \text{for } i > 0 \end{cases}$$

Write a FORTRAN program to calculate Y. Use free formatted input, and Formatted output.
(Hint: The program should print message "No Action" if the value of X equal Zero then stop and print message "No Action" if the value under the root negative.)

3. The discount rate DR in a shop depended upon a value of goods A as following table :

Value of good (A)	Discount rate (DR)
A ≤ SR100	10%
SR100 < A ≤ SR500	20%
SR500 < A ≤ SR1000	30%
SR1000 < A ≤ SR5000	40%
SR5000 < A	50%

Write a FORTRAN program to read ***three*** goods and print the result as this format :

THE GOOD VALUE = XXXX.XX
THE DISCOUNT RATE = XX %
THE GOOD VALUE AFTER DISCOUNT = XXXX.XX

(Hint: use only if statement (no Do Loop), use appropriate format. Also value of good after discount = A-A*DR)