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1 !PROBLEM 6
2 ! Name: Debasis Buxy
3 !PRN: 22020004154
4 !to find the roots of a quadratic equation
5 program QUADROOT
6     implicit none
7     real :: A, B, C, D, X1, X2, ReX, ImX1, ImX2
8     write(*,*) "Ax^2+Bx+C"
9     write(*,*) "Enter coefficients A, B, C"
10    read(*,*) A, B, C
11
12    D = B**2 - 4.0*A*C
13    if (abs(D) < 1.E-4) then
14        X1 = -B/(2.0*A)
15        write(*,*) "Roots are equal: ", X1, X1
16    else if (D > 0) then
17        X1 = (-B+sqrt(D))/(2.0*A)
18        X2 = (-B-sqrt(D))/(2.0*A)
19        write(*,*) "Roots are unique: ", X1, X2
20    else
21        ReX = -B/(2.0*A)
22        ImX1 = sqrt(-D)/(2.0*A)
23        ImX2 = -sqrt(-D)/(2.0*A)
24        write(*,*) "Roots are imaginary: "
25        write(*,*) "(", ReX, ",", ImX1, ")"
26        write(*,*) "(", ReX, ",", ImX2, ")"
27    end if
28 end program QUADROOT

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