```java
import java.lang.Math;
import java.util.Scanner;
public class Quadratic {
public static void main (string args[]) {
Scanner sc = new Scanner (System.in);
System.out.println("--- Finding roots of a QE ---");
System.out.println("Enter co-efficients a.b.c of the QE ");
double r, sqrt;
double a = sc.nextDouble();
double b = sc.nextDouble();
double c = sc.nextDouble();
double disc = (Math.pow(b,2)) - 4 * a * c;
if (disc < 0) {
    sqrt = (Math.sqrt(-disc)) / (2 * a);
    r = -b/(2 * a);
   System.out.println("-ve D. So no real roots possible");
   System.out.println(" Img roots are:"+r+ "+i"+ sqrt+
          "and"+r+ "-i" + sqrt);
   // System.out.printf (" Img roots are %.2f +i %.4f & %.2f-i %.4f",
              r, sqrt, r, sqrt);
}
else if ( disc>0){
    sqrt = (Math.sqrt(disc)) /(2 * a);
    r = -b/(2 * a);
   System.out.println(" Real roots:"+(r+sqrt)+ "and "+
          (r-sqrt));
   // System.out.printf("Real roots are %.4f & %.4f", (r+sqrt),
              (r-sqrt);
```

```
else if (disc ==0){
    r= -b/(2*a);
    System.out.println("Roots are equal to "+r);
}
}
}
```

ALGORITHM

1. Input value of a, b, c
2. Calculate disc = $b^2 - 4ac$
3. If (disc<0)
   a) Calculate sqrt = $\sqrt{-disc} / 2*a$
   b) Calculate r = -b/2a
   c) Display imaginary roots
   Else
4. If (disc>0)
   a) Caculate sqrt = $\sqrt{disc} / 2a$
   b) Calculate r = -b/2a
   c) Display real and distinct roots
5. Else If (disc==0)
   a) Calculate r = -b/2a
   b) Display real and equal roots.