Q Print all real solutions to the quadratic equation. $ax^2 + bx + c = 0$.

```
import java.util.Scanner;
Public class quadratic
{
  Public static void main (String [] args)
  {
    Scanner input = new Scanner (System.in);
    System.out.println ("Enter the first coefficient");
      int a = input.nextInt ();
    System.out.println ("Enter the second coefficient");
      int b = input.nextInt ();

      int Δ = b*b - 4* a*c ;

      if ( Δ>0)
    { System.out.println (" the roots are
      real & distinct ");
      int r1 = (-b + Math.sqrt (Δ) ) / (2*a);
      int r2 = (-b - Math.sqrt (Δ) / (2*a);
      System.out.println ("r1 = " + r1);
      System.out.println ("r2 = " + r2);

    }
    else if (Δ==0)
    {
      System.out.println (" Roots are real &
        equal ");
      int r = -b / (2*a);
      System.out.println ("root = " + r);
    }
```

```
else
  System.out.println("Roots are imaginary");
 }
}
```

Algorithm:

step 1: start

step 2: input a, b, c

step 3: if a = 0 ; print "invalid"

step 4: else det = b * b - 4 * a * c

step 5: if det > 0

$r_1 = (-b + \sqrt{b^2 - 4ac}) / 2a$

$r_2 = (-b + \sqrt{b^2 - 4ac}) / 2a$

step 6: else if det = 0

$r = -b/2a$

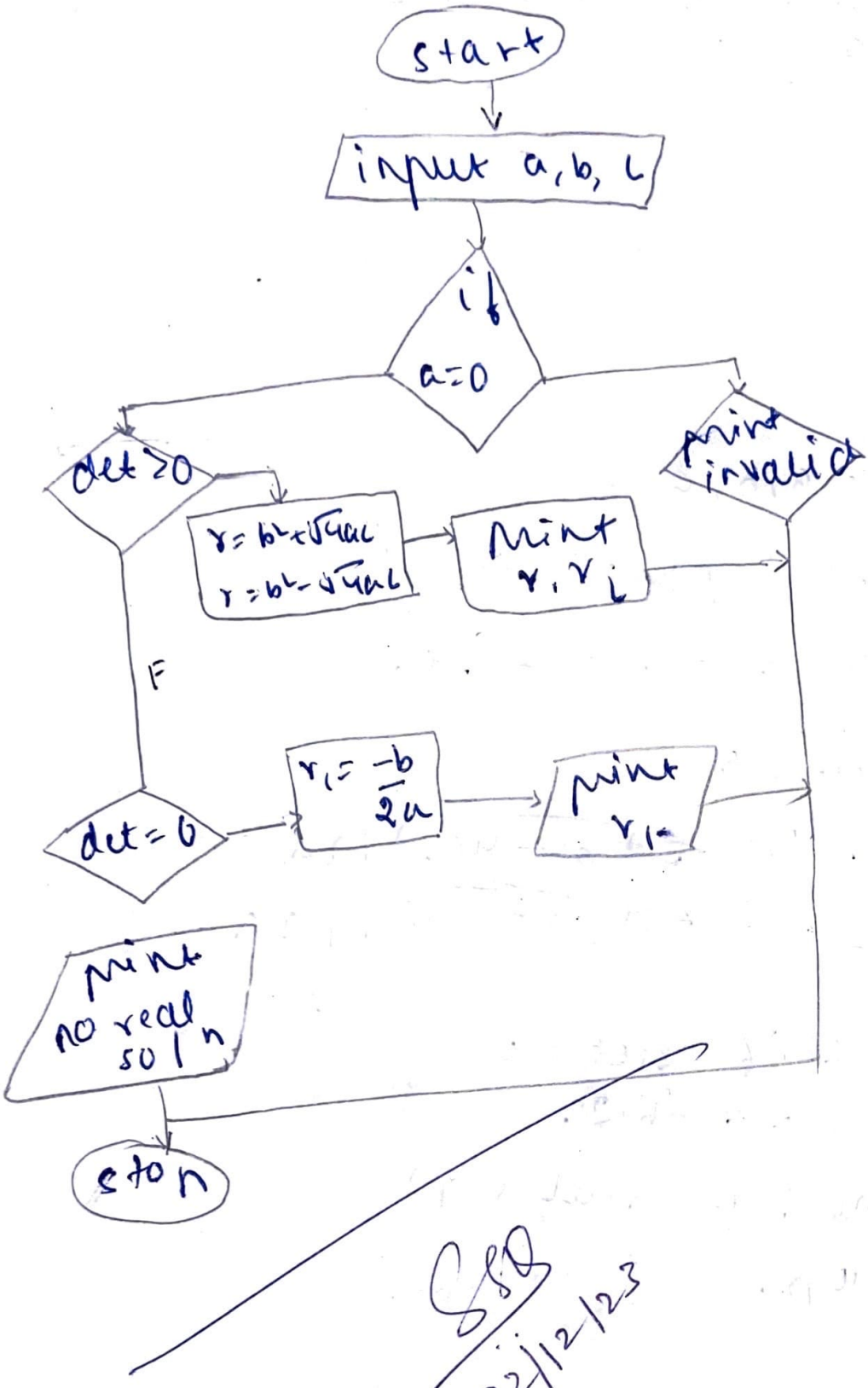
step 7: else : NO real soln

step 8: stop.

flowchart:

start

flowchart :



SSB
22/12/23

```
Enter values of a, b, c:
1
21
1
Roots are real and distinct
R1= -0.04772752 R2= -20.952272
ANJALI 1BM22CS043

Process finished with exit code 0
```