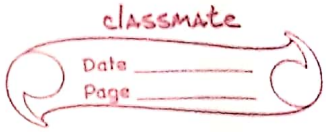
Week 3 (lab 1)

Algorithm
Input a, b, c
Calculate discriminate (d)

- if $d < 0$ → No real roots
- if $d >= 0$ → Calculation of r_1 and r_2
  - If $d == 0$ → Roots are real and equal, print r_1, r_2
  - if $d > 0$ → Roots are real and unequal, print r_1, r_2

```
import java.util.Scanner;
class quadratic
{
  public static void main(String[] args)
  {
    Scanner ss = new Scanner(System.in);
    System.out.println("Enter the value of a:");
    double a = ss.nextDouble();
    System.out.println("Enter the value of b:");
    double b = ss.nextDouble();
    System.out.println("Enter the value of c:");
    double c = ss.nextDouble();

    double d = Math.sqrt(b*b) - (4*a*c));
    double r1, r2;
    if(d > 0)
    {
      r1 = (-b+d)/(2*a);
      r2 = (-b-d)/(2*a);
      System.out.printf("Roots are real and distinct
          : %.2f and %.2f", r1, r2);
      System.out.println();
    }
    else if(d==0)
    {
      r1 = r2 = (-b)/(2*a);
      System.out.printf("Roots are real and equal:
          %.2f and %.2f", r1, r2);
    }
```




```
else
{
    System.out.printf("Roots are complex and not real");
    System.out.println();
}
}
}
```