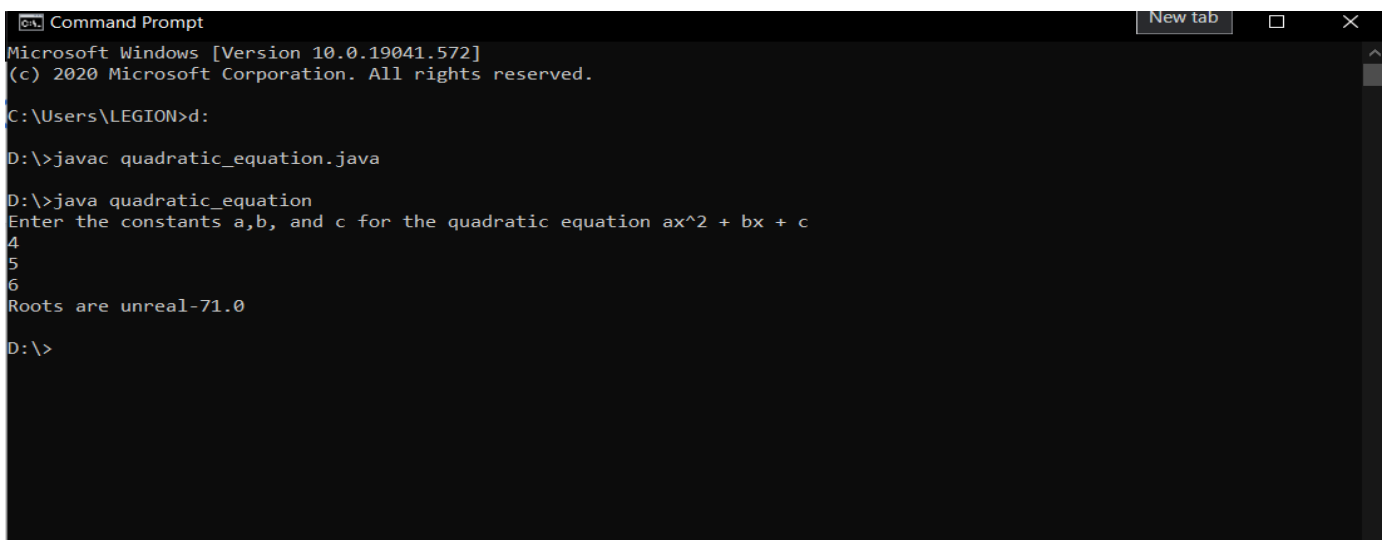# LAB 1: QUADRATIC EQUATIONS

```java
import java.util.Scanner;
class quadratic_equation
{
   public static void main(String[]args)
  {
   double a, b, c, sum, root1, root2;
   Scanner in = new Scanner(System.in);
   System.out.println("Enter the constants a,b, and c for the quadratic equation ax^2 + bx + c");
   a=in.nextDouble();
   b=in.nextDouble();
   c=in.nextDouble();
   sum= (b*b)-(4*a*c);
   if(sum>0)
   {
   System.out.println("Roots are real and unequal" + sum);
   root1=(-b + Math.sqrt(sum))/(2*a);
   root2=(-b - Math.sqrt(sum))/(2*a);
   System.out.println("Roots are" + root1 + "and" + root2 );
   }
   else if(sum==0)
   {
   System.out.println("Roots are real and equal." + sum);
   root1 = root2 = (-b)/(2*a);
   System.out.println("Roots of the quadratic equation are "+ root1 +" and "+ root2);
   }
   else if(sum<0)
   {
    System.out.println("Roots are unreal" + sum);
   }
  }
}
```

```
C:. Command Prompt                                               New tab    □    ×
Microsoft Windows [Version 10.0.19041.572]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\LEGION>d:

D:\>javac quadratic_equation.java

D:\>java quadratic_equation
Enter the constants a,b, and c for the quadratic equation ax^2 + bx + c
4
5
6
Roots are unreal-71.0

D:\>
```