QUADRATIC EQUATION ROOT CALCULATION

```
import java.util.*;
class ans{
public static void main(String args[]){
System.out.println("Enter the three numbers");
double root1,root2;
Scanner sc=new Scanner(System.in);
double a=sc.nextDouble();
double b=sc.nextDouble();
double c=sc.nextDouble();
double d=b*b-4*a*c;
if(d==0){
root1=-b/(2*a);
System.out.println("Roots are Equal\nRoots are"+root1+" "+root1);
}else if(d>0){
root1=(-b+Math.sqrt(d))/(2*a);
root2=(-b-Math.sqrt(d))/(2*a);
System.out.println("Roots are real and distinct\nRoot1 ="+" "+root1+"\nRoot2="+" "+root2);
}
else{
root1=-b/(2*a);
root2=(Math.sqrt(-d))/(2*a);
System.out.println("Roots are imaginary");
System.out.format("Root1= %2f +i(%2f)\n",root1,root2);
System.out.format("Root1= %2f -i(%2f)\n",root1,root2);
}
}
}
```

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OUTPUT

1.

```
C:\Users\Admin\Desktop\1BM21CS237>javac ans.java

C:\Users\Admin\Desktop\1BM21CS237>java ans
Enter the three numbers
1
1
1
Roots are imaginary
Root1= -0.500000 +i(0.866025)
Root1= -0.500000 -i(0.866025)

C:\Users\Admin\Desktop\1BM21CS237>
```

2.

```
C:\Users\Admin\Desktop\1BM21CS237>java ans
Enter the three numbers
1
2
1
Roots are Equal
Roots are-1.0 -1.0

C:\Users\Admin\Desktop\1BM21CS237>
```

3.

```
C:\Users\Admin\Desktop\1BM21CS237>java ans
Enter the three numbers
1
4
1
Roots are real and distinct
Root1 = -0.2679491924311228
Root2= -3.732050807568877

C:\Users\Admin\Desktop\1BM21CS237>
```