

Java program to find all roots of a quadratic equation

```
public class Quadratic {  
    public static void main (String[] args)  
    {
```

```
        Scanner input = new Scanner (System.in);
```

```
        System.out.print ("Input type a");
```

```
        float a = input.nextFloat();
```

```
        System.out.print ("Input b");
```

```
        float b = input.nextFloat();
```

```
        System.out.print ("Input c");
```

```
        float c = input.nextFloat();
```

```
        float discriminant = b * b - 4.0 * a * c;
```

```
        if (discriminant > 0.0)
```

```
        {
```

```
            float x1 = (-b + Math.pow (discriminant, 0.5)) / (2 * a);
```

```
            float x2 = (-b - Math.pow (discriminant, 0.5)) / (2 * a);
```

```
            System.out.println ("\n The roots  
            are real and distinct: root 1 = " + x1 + "  
            and root 2 = " + x2 + " ");
```

else if (discriminant == 0)

{

float x1 float x2

~~root1~~ = ~~root2~~ = $-b / (2 * a)$;

System.out.println("\n Two Equal

Real Roots : $x_1 = " + x_1 + "$ and root

~~$x_2 = " + x_2 + "$~~

```
else if ( $r < 0.0$ )  
{ system.out.println("it has no real  
roots");  
}
```