#include<stdio.h>

#include<math.h>

int main()

{

float a,b,c,desc,r1,r2,realpart,imgpart;

printf("Enter the coefficients of a, b and c :"); scanf("%f%f%f",&a,&b,&c);

if(a==0)

{

printf("Coefficient of a cannot be zero....\n"); printf("Please try again....\n");

return 1;

}

desc=(b\*b)-(4.0\*a\*c);

if(desc==0)

{

printf("The roots are real and equal\n"); r1=r2=(-b)/(2.0\*a); printf("The two roots are r1=r2=%f\n",r1);

}

else if(desc>0)

{

printf("The roots are real and distinct\n"); r1=(-b+sqrt(desc))/(2.0\*a); r2=(-b-sqrt(desc))/(2.0\*a); printf("The roots are r1=%f and r2=%f\n",r1,r2);

}

else

{

printf("The roots are imaginary\n"); realpart=(-b)/(2.0\*a); imgpart=sqrt(-desc)/(2.0\*a);

printf("The roots are r1=%f + i %f\n",realpart,imgpart); printf("r2=%f - i %f\n",realpart,imgpart);

}

return 0;

}

Out put:

$ cc quadratic.c

$./a.out

Enter the coefficients of a ,b and c:1 2 1

The roots are real and equal

The two roots are r1=r2=-1.000000

$./a.out

Enter the coefficients of a ,b and c:1 -2 1

The roots are real and equal

The two roots are r1=r2= 1.000000

$./a.out

Enter the coefficients of a ,b and c:1 7 12

The roots are real and distinct

The roots are r1=-3.000000 and r2=-4.000000

$./a.out

Enter the coefficients of a ,b and c:1 1 1

The roots are imaginary

The roots are r1=-0.500000+i0.866025

r2=-4.000000-i0.866025