1. **C program to calculate roots of a quadratic equation**

2. **Quadratic equation in c language**

#include<stdio.h>

#include<math.h>

int main(){

  float a,b,c;

  float d,root1,root2;

  printf("Enter a, b and c of quadratic equation: ");

  scanf("%f%f%f",&a,&b,&c);

  d = b \* b - 4 \* a \* c;

  if(d < 0){

    printf("Roots are complex number.\n");

    printf("Roots of quadratic equation are: ");

    printf("%.3f%+.3fi",-b/(2\*a),sqrt(-d)/(2\*a));

    printf(", %.3f%+.3fi",-b/(2\*a),-sqrt(-d)/(2\*a));

    return 0;

  }

  else if(d==0){

   printf("Both roots are equal.\n");

   root1 = -b /(2\* a);

   printf("Root of quadratic equation is: %.3f ",root1);

   return 0;

  }

  else{

   printf("Roots are real numbers.\n");

   root1 = ( -b + sqrt(d)) / (2\* a);

   root2 = ( -b - sqrt(d)) / (2\* a);

   printf("Roots of quadratic equation are: %.3f , %.3f",root1,root2);

  }

  return 0;

}

Sample output:

Enter a, b and c of quadratic equation: 2 4 1

Roots are real numbers.

Roots of quadratic equation are: -0.293, -1.707

1. **How to find a b and c in a quadratic equation**

#include<stdio.h>

#include<math.h>

int main(){

  float a,b,c;

  float d,root1,root2;

  printf("Enter quadratic equation in the format ax^2+bx+c: ");

  scanf("%fx^2%fx%f",&a,&b,&c);

  d = b \* b - 4 \* a \* c;

  if(d < 0){

    printf("Roots are complex number.\n");

    return 0;

  }

   root1 = ( -b + sqrt(d)) / (2\* a);

   root2 = ( -b - sqrt(d)) / (2\* a);

   printf("Roots of quadratic equation are: %.3f , %.3f",root1,root2);

  return 0;

}

Sample output:

Enter quadratic equation in the format ax^2+bx+c: 2x^2+4x+-1

Roots of quadratic equation are: 0.000, -2.000