

```
#include<bits/stdc++.h>
```

```
#include<math.h>
```

```
using namespace std;
```

```
int A[100],n1;
```

```
double f(int poly[], int n, double x)
```

```
{
```

```
    double result = poly[0];
```

```
    for (int i=1; i<n; i++)
```

```
        result = result*x + poly[i];
```

```
    return result;
```

```
}
```

```
double f2(int poly[],int order,double x)
```

```
{
```

```
    double value = 0;
```

```
    int i;
```

```
    for(i=0; i<order; i++)
```

```
    {
```

```
        value = value*x + (order-i)*poly[i];
```

```
    }
```

```
    return value;
```

```
}
```

```
double newton_raphson(double x)
```

```
{
```

```

int i=0;
double fx=2,f_derx=1,x_prev=x,h, f_root;

while(f_root!=0){
    i++;
    fx = f(A,n1+1,x_prev);
    f_derx = f2(A,n1,x_prev);
    h = fx/f_derx;
    x = x_prev - h;
    f_root=f(A,n1,x);
    printf("After %d iteration the Root is: %lf\n",i ,x);
    if(abs(x-x_prev)<=0.00009) break;
    x_prev = x;
}
printf("\n");
printf("Root Found Using Newton Raphson Method is Exact Root\n");

return x;
}

int main()
{
    double Xo;
    int i;

    cout<<"ENTER THE TOTAL NO. OF POWER:::: ";
    cin>> n1;
    cout<<"\nEnter values of coefficients:\n";

```

```

for( i=0; i<= n1; i++)
{
    cout<<"\nx^"<<i<<"::";
    cin >> A[n1-i];
}
cout<<"\nTHE POLYNOMIAL IS ::: ";
for(int i=0;i<=n1;i++)
    cout<<"("<<A[i]<<")"<<"x^"<<(n1-i)<<"+";
cout << "\nINTIAL: Xo---->";
cin >> Xo;

Xo = newton_raphson(Xo);

return 0;
}

```