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算法框图：

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| f63e0d53c705fb0a1f987ff6b5c9bca |

代码部分：

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| #include "stdio.h"  #include "math.h"  #define eps 1e-10  int zeros(double a,double b, double c);  bool function(double a,double b, double c,double x,double e);  double x1,x2;  #define eps 1e-10  int main()  { while(1){  double a,b,c,e;  printf("Input a,b,c e:\n");  scanf("%lf %lf %lf %lf",&a,&b,&c,&e);  if(a){  while(a>1e154||b>1e154||c>1e154){  a/=2;b/=2;c/=2;  }  }  int n=zeros(a,b,c);  printf("total %d zeros\n",n);  if(n==1){  printf("We got: %lf\n",x1);  if(function(a,b,c,x1,e)){  printf("Maybe %lf meet the requiremwnt!\n\n",x1);  }  }else if(n==2){  printf("We got %lf %lf\n",x1,x2);  if(function(a,b,c,x1,e)){  printf("Maybe %lf meet the requiremwnt!\n",x1);  }  if(function(a,b,c,x2,e)){  printf("Maybe %lf meet the requiremwnt!\n\n",x2);  }  }  }  return 0;  }  int zeros(double a,double b, double c){  if(a==0){  if(b==0){  return 0;  }else{  x1=-c/b;  return 1;  }  }else if(b\*b<4\*a\*c){  return 0;  }else if(fabs(b\*b-4\*a\*c)<eps){  x1=-b\*(1/(2\*a));  return 1;  }else{  double d=sqrt(b\*b-4\*a\*c);  if(b>0){  double temp1=1/(b+d),temp2=1/(2\*a);  x1=-2\*c\*temp1;  x2=-(b+d)\*temp2;  }else{  double temp1=1/(2\*a),temp2=1/(-b+d);  x1=(-b+d)\*temp1;  x2=2\*c\*temp2;  }  return 2;  }  return -1;  }  bool function(double a,double b, double c,double x,double e){  if(fabs(a\*x\*x+b\*x+c)<e){  return true;  };  return false;  } |

测试结果：

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| Input a,b,c e:  6e154 5e154 -4e154 1  total 2 zeros  We got 0.500000 -1.333333  Maybe 0.500000 meet the requirement!  Input a,b,c e:  0 1 1 1  total 1 zeros  We got: -1.000000  Maybe -1.000000 meet the requirement!  Input a,b,c e:  1 -1e5 1 1  total 2 zeros  We got 99999.999990 0.000010  Maybe 99999.999990 meet the requirement!  Maybe 0.000010 meet the requirement!  Input a,b,c e:  1 -100000000.00000008 1 1  total 2 zeros  We got 100000000.000000 0.000000  Maybe 100000000.000000 meet the requirement!  Maybe 0.000000 meet the requirement!  Input a,b,c e:  1e-155 -1e155 1e155 1  total 2 zeros  We got 1.#INF00 1.000000  Maybe 1.000000 meet the requirement!  Input a,b,c e:  1 -4 3.999999 1  total 2 zeros  We got 2.001000 1.999000  Maybe 2.001000 meet the requirement!  Maybe 1.999000 meet the requirement! |