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#include <stdio.h>
#include <math.h>

int main()
{
    double a, b, c;
    double delta;
    int sign;

    printf("请输入 a, b, c 的值 (用空格分隔): ");
    scanf("%lf %lf %lf", &a, &b, &c);

    if (a == 0) {
        printf("这不是二次方程 !\n");
        return 0;
    }
    delta = b * b - 4 * a * c;
    if (delta > 0)
    {
        sign = 1;
    } else if (delta == 0)
    {
        sign = 0;
    } else
    {
        sign = -1;
    }

    switch (sign) {
        case 1:
            printf("两个不等实根:\n");
            printf("x1 = %f\n", (-b + sqrt(delta)) / (2 * a));
            printf("x2 = %f\n", (-b - sqrt(delta)) / (2 * a));
            break;
        case 0:
            printf("两个相等实根:\n");
            printf("x1 = x2 = %f\n", -b / (2 * a));
            break;
        case -1:
            printf("有两个虚根:\n");
            break;
        default:
            printf("错误情况:\n");
    }
    return 0;
}

#include <stdio.h>
#include <time.h>
int main()
{
    clock_t start,end;
    int big,middle,small,count;
    start=clock();
    big=1;count=0;
    printf("this is a for program\n\n");
    for(big=1;big<=32;big++)
    {
        for(middle=1;middle<=48;middle++)
        {
            small=100-big-middle;
            if(small>=1&&big*3+middle*2+small*0.5==100)
            {
                count++;
            }
        }
    }
    end=clock();
    printf("the num of method2 is:%d\n\n",count);
    printf("the time is:%.5lf time\n",difftime(end,start));
    return 0;
}

#include <stdio.h>
#include <time.h>
int main()
{
    clock_t start,end;
    int big,middle,small,count;
    start=clock();
    count=0;
    printf("this is a (do while program) \n\n");
    for(big=0;big<=33;big++)
    {
        for(middle=0;middle<=50;middle++)
        {
            small=100-big-middle;
            if(6*big+4*middle+small==200)
            {
                count++;
            }
        }
    }
    end=clock();
    printf("the num of method2 is:%d\n\n",count);
    printf("the time is:%.5lf time\n",difftime(end,start));
    return 0;
}

#include <stdio.h>
#include <time.h>
int main()
{
    clock_t start,end;
    int big,middle,small,count;
    start=clock();
    big=1;count=0;
    printf("this is a while program\n\n");
    while(big<=33)
    {
        middle=1;
        while(middle<=50)
        {
            small=2;
            while(small<=98)
            {
                if(big + middle + small == 100 && 3 * big + 2 * middle + small * 0.5 == 100)
                {
                    count++;
                }
                small+=2;
            }
            middle++;
        }
        big++;
    }
    end=clock();
    printf("the num of method1 is:%d\n\n",count);
    printf("the time is:%.5lf time\n",difftime(end,start));
    return 0;
}

#include <stdio.h>
#include <time.h>
int main()
{
    clock_t start,end;
    int big,middle,small,count;
    start=clock();
    count=0;
    printf("this is a (do while program) \n\n");
    big=0;
    do
    {
        middle=0;
        do
        {
            small=0;
            do
            {
                if(big+middle+small==100&&3*big+2*middle+0.5*small==100)
                {
                    count++;
                }
                small++;
            }while(small<=100);
            middle++;
        }while(middle<=50);
        big++;
    }while(big<=33);
    end=clock();
    printf("the num of method2 is:%d\n\n",count);
    printf("the time is:%.5lf time\n",difftime(end,start));
    return 0;
}

```