

CP 111 Computer Programming

2/2554 Section B01/B02

Lab 6 solution

1. Problem name: Cal_Intregation

```
#include <stdio.h>

double poly_two(double k1, double k2, double k3, double x);
int main()
{
    double k1,k2,k3,a,b;
    double i,n,c,x,y,sum,fa,fb;

    scanf("%lf %lf %lf %lf %lf",&k1,&k2,&k3,&a,&b);
    n=100000;
    c=(b-a)/n;
    sum=0;
    for(i=0;i<=n-1;i++)
    {
        x=a+c*i;
        y=poly_two(k1,k2,k3,x);
        sum=sum+y*c;
    }
    printf("%.6f\n",sum);
    x=a;
    fa=(1.0/3.0)*k1*x*x*x+(1.0/2.0)*k2*x*x+k3*x;
    x=b;
    fb=(1.0/3.0)*k1*x*x*x+(1.0/2.0)*k2*x*x+k3*x;
    printf("%.6f\n",fb-fa);
    return 0;
}

double poly_two(double k1, double k2, double k3, double x)
{
    return(k1*x*x + k2*x + k3);
}
```

2. Problem name: Diamond_2

```
#include <stdio.h>
#include <stdlib.h>
int main()
{
    int n,x,y;

    scanf("%d",&n);
    for(y=-(int)(n/2) ; y<=(int)(n/2) ; y++)
    {
        for(x=-(int)(n/2) ; x<=(int)(n/2) ; x++)
        {
            if( (abs(x)+ abs(y) == n/2) ||
                (abs(x)+ abs(y) < n/2  && abs(x)==abs(y)) )
                printf(".");
            else if( (abs(x)+ abs(y) < n/2) )
                printf("x");
            else
                printf("o");
        }
        printf("\n");
    }
    return 0;
}
```

5. Problem name: Triangular_Number

```
#include <stdio.h>
int isTriangular(int);
int main()
{
    int x,i;
    scanf("%d",&x);
    if(isTriangular(x)==1)
        printf("YES\n");
    else
        printf("NO\n");

    return 0;
}

int isTriangular(int x)
{
    int dy,sum;

    dy=1;
    sum=0;
    while(sum<x)
    {
        sum=sum+dy;
        dy=dy+1;
    }
    if(sum==x)
        return 1;
    else
        return 0;
}
```

6. Problem name: Max_White_Sheep

```
#include <stdio.h>
int main()
{
    int i,x,N,n_odd,n_even;
    int max_odd,max_even;

    scanf("%d",&N);
    n_odd=0;
    n_even=0;
    for(i=0;i<N;i++)
    {
        scanf("%d",&x);
        if(x%2==0)
        {
            if(n_even==0)
            {
                max_even=x;
            }
            else
            {
                if(x>max_even)
                    max_even=x;
            }
            n_even++;
        }
        else
        {
            if(n_odd==0)
            {
                max_odd=x;
            }
            else
            {
                if(x>max_odd)
                    max_odd=x;
            }
            n_odd++;
        }
    }
    if( n_even>1)
    {
        printf("%d\n",max_even);
    }
    else
    {
        printf("%d",max_odd);
    }

    return 0;
}
```