**C语言 复试 课本例题和习题**

**//习题3.2 逆序数**

**#include<stdio.h>**

**int main()**

**{**

**int n, a, b, c,n\_copy;**

**printf("input a number(xxx):\n");**

**scanf("%d", &n);**

**n\_copy = n;**

**a = n\_copy % 10;**

**b = (n\_copy / 10) % 10;**

**c = n\_copy / 100;**

**printf("reverse number is :%d", (a\*10+b)\*10+c);**

**return 0;**

**}**

**//习题3.4 一元二次方程 输入法一定要英文**

**#include<stdio.h>**

**#include<math.h>**

**int main()**

**{**

**printf("compute ax^2 + bx + c = 0\n");**

**double a,b,c,x1,x2,q;**

**printf("input a b c:(b^2 - 4ac > 0):\n");**

**scanf("%lf%lf%lf",&a,&b,&c);**

**q = sqrt(b\*b - 4\*a\*c);**

**x1 = (-b - q)/(2 \* a);**

**x2 = (-b + q)/(2 \* a);**

**printf("x1 = %lf, x2 = %lf", x1, x2);**

**return 0;**

**}**

**//实验4.2 字母大小写转换**

**#include<stdio.h>**

**int main()**

**{**

**char a;**

**scanf("%c", &a);**

**printf("char = %c and ASCII = %d",a+('A'-'a'),a+('A'-'a'));**

**return 0;**

**}**

**//一元二次方程 073**

**#include<stdio.h>**

**#include<math.h>**

**#include<stdlib.h>**

**#define EPS 1e-6**

**int main()**

**{**

**float a, b, c, disc, p, q;**

**printf("input a, b, c :");**

**scanf("%f%f%f", &a,&b,&c);**

**if(fabs(a) <= EPS)//a=0时不是二次方程**

**{**

**printf("it is not a quandratic equantion!\n");**

**exit(0);**

**}**

**disc = b\*b - 4\*a\*c;**

**p= (-b)/(2\*a); q = sqrt(fabs(disc)) / (2\*a);**

**if(fabs(disc) <= EPS)//delta = 0 两个相同的x值**

**{**

**printf("x1 = x2 = %f\n", p);**

**}**

**else**

**{**

**if(disc > EPS)//delta>0**

**{**

**printf("x1 = %f, x2 = %f\n", p-q,p+q);**

**}**

**else//delta < 0**

**{**

**printf("x1 = %f+%fi, x2 = %f-%fi\n",p,q,p,q);**

**}**

**}**

**return 0;**

**}**

**//猜数游戏 p123**

**#include<stdio.h>**

**#include<math.h>**

**#include<stdlib.h>**

**#define EPS 1e-1**

**int main()**

**{**

**int magic, guess, counter = 0;**

**int ret; char reply;**

**srand(time(NULL));**

**do{**

**counter=0;**

**magic = rand() % 100 + 1;**

**do{**

**printf("please guess a magic number:");**

**ret = scanf("%d",&guess);**

**while(ret != 1)//输入的是非法字符，重新输入**

**{**

**while(getchar() != '\n');**

**printf("please guess a magic number:");**

**ret = scanf("%d",&guess);**

**}**

**//合法输入**

**counter++;**

**if(guess < magic)**

**printf("wrong, too small!\n");**

**else if (guess > magic)**

**printf("wrong, too big!\n");**

**else**

**printf("right!\n");**

**}while(guess != magic && counter <= 10);**

**printf("counter = %d\n",counter);**

**printf("do you want to continue?(Y/N or y/n)");**

**scanf(" %c", &reply);**

**}while(reply == 'Y' || reply == 'y');**

**return 0;**

**}**

**//组合数计算 p157**

**#include<stdio.h>**

**unsigned long Fact(unsigned int n)**

**{**

**unsigned int i ;**

**long unsigned result = 1;**

**for(i = 1; i<=n; i++)**

**result \*= i;**

**return result;**

**}**

**int main()**

**{**

**unsigned int m,k;**

**unsigned long p;**

**do{**

**printf("input m and k:\n");**

**scanf("%u%u",&m, &k);**

**}while(m<k || k<=0 || m<=0);**

**p = Fact(m) / (Fact(k) \* Fact(m - k));**

**printf("p = %lu", p);**

**return 0;**

**}**

**//递归计算Fibonacci数列**

**#include<stdio.h>**

**int count;**

**long Fibo(int n)**

**{**

**count++;**

**if(n == 0 )**

**return 0;**

**else if(n == 1)**

**return 1;**

**else**

**return Fibo(n-1) + Fibo(n-2);**

**}**

**int main()**

**{**

**int n, i;**

**long p;**

**do{**

**printf("input n:\n");**

**scanf("%d",&n);**

**}while(n<=0);**

**for(i = 1; i <= n; i++)**

**{**

**count = 0;**

**p = Fibo(i);**

**printf("Fibo(%d)= %ld,\tcount =\t%d\n",i, p, count);**

**}**

**return 0;**

**}**

**//猜数字 函数设计**

**#include<stdio.h>**

**#include<time.h>**

**#define MAX\_TIMES 10**

**int MakeNumber()**

**{**

**srand(time(NULL));**

**return rand()%100 + 1;**

**}**

**int Isvalid(const int guess)**

**{**

**if(guess>0 && guess<=100)**

**return 1;**

**else**

**return 0;**

**}**

**int IsRight(const int magic, const int guess)**

**{**

**if(guess < magic)**

**{**

**printf("wrong,too small!\n");**

**return 0;**

**}**

**else if(guess > magic)**

**{**

**printf("wrong,too big!\n");**

**return 0;**

**}**

**else**

**return 1;**

**}**

**void guessNumber(const int magic)**

**{**

**int counter = 0,guess,ret, right = 0;**

**printf("input a number you guess(1~100)\n");**

**do{**

**printf("Try %d:", counter + 1);**

**ret = scanf("%d",&guess);**

**while(ret != 1 || !Isvalid(guess))**

**{**

**printf("Input Error!\n");**

**while(getchar() != '\n');**

**printf("Try %d:", counter + 1);**

**ret = scanf("%d",&guess);**

**}**

**counter++;**

**right = IsRight(magic, guess);**

**}while(!right && counter <MAX\_TIMES);**

**if(right == 1)**

**{**

**printf("right!, counter = %d\n",counter);**

**}**

**else**

**{**

**printf("Mession failed after %d times!",MAX\_TIMES);**

**}**

**}**

**int main()**

**{**

**int magic; char reply;**

**do{**

**magic = MakeNumber();**

**guessNumber(magic);**

**printf("do you want to continue?(Y/N or y/n):");**

**scanf(" %c", &reply);//一定要有空格，读取走前一个回车符**

**}while(reply == 'y' || reply == 'Y');**

**return 0;**

**}**

**//字符串排序**

**#include<stdio.h>**

**#include<string.h>**

**#define MAX\_LEN 10**

**#define N 150**

**void StringSort(char str[][MAX\_LEN], int n)**

**{**

**char temp[MAX\_LEN];**

**int i,j;**

**for(i = 0; i < n; i++)**

**for(j = i+1; j<n; j++)**

**{**

**if(strcmp(str[i], str[j])>0)**

**{**

**strcpy(temp, str[i]);**

**strcpy(str[i],str[j]);**

**strcpy(str[j], temp);**

**}**

**}**

**}**

**int main()**

**{**

**int i, n;**

**char name[N][MAX\_LEN];**

**printf("How many countries?");**

**scanf("%d",&n);**

**getchar();//读走回车符**

**printf("Input their names:\n");**

**for(i=0; i<n; i++)**

**gets(name[i]);**

**StringSort(name,n);**

**printf("Sorted result:\n");**

**for(i=0; i<n; i++)**

**printf("%s\n",name[i]);**

**return 0;**

**}**

**//字符串复制**

**#include<stdio.h>**

**#include<string.h>**

**//#define MAX\_LEN 10**

**#define N 150**

**void Mystrcopy(char str1[], char str2[])**

**{**

**int i = 0 ;**

**while(str2[i] != '\0')**

**{**

**str1[i] = str2[i];**

**i++;**

**}**

**str1[i] = '\0';**

**}**

**void Mystrcopy(char \*dsStr, char \*srStr)**

**{**

**while(\*srStr != '\0')**

**{**

**\*dsStr++ = \*srStr++;**

**}**

**\*dsStr = '\0';**

**}**

**int main()**

**{**

**char str1[N],str2[N];**

**printf("Input a string:");**

**gets(str2);**

**Mystrcopy(str1, str2);**

**printf("the copy is:");**

**puts(str1);**

**return 0;**

**}**

**//指针与数组 p286 287**

**#include<stdio.h>**

**int main()**

**{**

**int a[5],i;**

**printf("Input five numbers:");**

**for(i = 0; i<5; i++)**

**{**

**scanf("%d",(a+i));**

**}**

**for(i = 0; i<5; i++)**

**{**

**printf("%4d ", \*(a+i));**

**}**

**printf("\n");**

**return 0;**

**}**

**#include<stdio.h>**

**//改变指针位置**

**int main()**

**{**

**int a[5],\*p;**

**printf("Input five numbers:");**

**for(p = a; p<a+5; p++)**

**{**

**scanf("%d",p);**

**}**

**for(p = a; p<a+5; p++)**

**{**

**printf("%4d ", \*p);**

**}**

**printf("\n");**

**return 0;**

**}**

**#include<stdio.h>**

**//不改变指针位置**

**int main()**

**{**

**int a[5],\*p = NULL,i;**

**printf("Input five numbers:");**

**p = a;**

**for(i = 0 ; i<5; i++)**

**{**

**scanf("%d",(p+i));**

**}**

**for(i = 0 ; i<5; i++)**

**{**

**printf("%4d ", \*(p+i));**

**}**

**printf("\n");**

**return 0;**

**}**

**//指针与数组参数传递**

**#include<stdio.h>**

**#define N 4//N要和列数保持一致**

**void InputArray(int (\*p)[N], int m, int n);**

**void outputArray(int (\*p)[N], int m, int n);**

**void InputArray(int (\*p)[N], int m, int n)**

**{**

**int i, j;**

**for(i=0; i<m; i++)**

**{**

**for(j=0; j<n; j++)**

**{**

**scanf("%d",\*(p+i)+j);**

**}**

**}**

**}**

**void outputArray(int (\*p)[N], int m, int n)**

**{**

**int i, j;**

**for(i=0; i<m; i++)**

**{**

**for(j=0; j<n; j++)**

**{**

**printf("%2d ",\*(\*(p+i)+j));**

**}**

**printf("\n");**

**}**

**}**

**int main()**

**{**

**int a[3][4];**

**printf("Input 3\*4 Array:\n");**

**InputArray(a, 3, 4);**

**outputArray(a, 3, 4);**

**return 0;**

**}**

**//通过行指针实现字符串排序**

**#include<stdio.h>**

**#include<string.h>**

**#define MAX\_LEN 10**

**#define N 150**

**void SortString(char \*ptr[], int n)**

**{**

**int i, j;**

**char \*temp = NULL;**

**for(i = 0; i<n-1; i++)**

**for(j = i+1; j<n; j++)**

**{**

**if(strcmp(ptr[i], ptr[j])>0)**

**{**

**temp = ptr[i];**

**ptr[i] = ptr[j];**

**ptr[j] = temp;**

**}**

**}**

**}**

**int main()**

**{**

**int i, n;**

**char name[N][MAX\_LEN];**

**char \*pStr[N];**

**printf("How many contries:");**

**scanf("%d", &n);**

**getchar();// 读走回车符**

**printf("Input their names:\n");**

**for(i = 0; i<n; i++)**

**{**

**pStr[i] = name[i];**

**gets(pStr[i]);**

**}**

**SortString(pStr, n);**

**printf("Sorted result:\n");**

**for(i = 0; i<n; i++)**

**{**

**puts(pStr[i]);**

**}**

**return 0;**

**}**

**//文件写如字符串 p376**

**#include<stdio.h>**

**#include<stdlib.h>**

**int main()**

**{**

**FILE \*fp;**

**char ch;**

**if((fp = fopen("D:\\demo.txt","w")) == NULL)**

**{**

**printf("Failed to open file\n");**

**exit(0);**

**}**

**ch = getchar();**

**while(ch != '\n')**

**{**

**fputc(ch,fp);**

**ch = getchar();**

**}**

**fclose(fp);**

**return 0;**

**}**

**//习题解答**

**//p8 5.3**

**#include<stdio.h>**

**#include<math.h>**

**int main()**

**{**

**float a, b, c, s, area;**

**printf("Input a, b, c:");**

**scanf("%f,%f,%f",&a,&b,&c);**

**if(a+b>c && a+c>b && b+c>a)//三角形判定条件**

**{**

**s = (a + b + c)/ 2.0;**

**area = sqrt(s\*(s-a)\*(s-b)\*(s-c));**

**printf("area = %f\n",area);**

**}**

**else**

**{**

**printf("it is not a triangle\n");**

**}**

**return 0;**

**}**

**//p8 5.4 银行整存整取不同期限年利率**

**#include<stdio.h>**

**#include<math.h>**

**#include<stdlib.h>**

**int main()**

**{**

**int year;**

**double rate, capital,deposite;**

**printf("please enter year and capital:");**

**scanf("%d, %lf", &year,&capital);**

**switch(year)**

**{**

**case 1:rate = 0.0225;break;**

**case 2:rate = 0.0243;break;**

**case 3:rate = 0.027;break;**

**case 5:rate = 0.0288;break;**

**case 8:rate = 0.03;break;**

**default:**

**printf("Error rate!");**

**}**

**deposite = capital \* pow(1+rate,year);**

**printf("rate = %f, deposite = %f\n", rate, deposite);**

**return 0;**

**}**

**//p13 5.10**

**#include<stdio.h>**

**int main()**

**{**

**int month,year;**

**printf("Input year and month:");**

**scanf("%d%d",&year,&month);**

**switch(month)**

**{**

**case 1:**

**case 3:**

**case 5:**

**case 7:**

**case 8:**

**case 10:**

**case 12:printf("31 days\n"); break;**

**case 4:**

**case 6:**

**case 9:**

**case 11:printf("30 days\n");beak;**

**case 2:if(year%4 == 0 && year %100 != 0 || year %400 == 0 )**

**{**

**printf("29 days\n");**

**}**

**else**

**{**

**printf("28 days\n");**

**}break;**

**default:printf("Input Error！");**

**}**

**return 0;**

**}**

**#include<stdio.h>**

**int main()**

**{**

**//计算 1\*2\*3+3\*4\*5...+99\*100\*101 =**

**long i;**

**long term, sum = 0;**

**for(i = 1; i<=99; i += 2)**

**{**

**term = i \*(i+1)\*(i+2);**

**sum = sum + term;**

**}**

**printf("sum = %ld\n",sum);**

**return 0;**

**}**

**#include<stdio.h>**

**int main()**

**{**

**//计算 a+aa+aaa+....+aaaa...aa =**

**int a,n,i;**

**long term = 0, sum = 0;**

**printf("input n and a:");**

**scanf("%d,%d",&a,&n);**

**for(i = 1; i<=n; i++)**

**{**

**term = term \*10 + a;**

**sum = sum + term;**

**}**

**printf("sum = %ld\n",sum);**

**return 0;**

**}**

**#include<stdio.h>**

**int main()**

**{**

**int n = 1;**

**float term = 1,sign = 1,sum = 0;**

**while(fabs(term) >= 1e-4)**

**{**

**term = sign /(float)n;**

**sum = sum + term;**

**sign = -sign;**

**n++;**

**}**

**printf("sum = %f",sum);**

**return 0;**

**}**

**//最小公倍数**

**#include<stdio.h>**

**int Lcm(int a, int b)**

**{**

**if(a<0 || b<0)**

**return -1;**

**int i;**

**for(i= 1; i<=b; i++)**

**if(i\*a % b == 0)**

**return i\*a;**

**}**

**int main()**

**{**

**int a,b,x;**

**printf("Input a and b:");**

**scanf("%d,%d",&a,&b);**

**x = Lcm(a,b);**

**if(x == -1)**

**printf("Input Error!");**

**else**

**printf("%d和%d的最小公倍数是：%d",a,b,x);**

**return 0;**

**}**

**//计算最大公约数**

**#include<stdio.h>**

**int Gcd1(int a, int b)**

**{//采用穷举法**

**int i;**

**if(a<0 || b<0)**

**return -1;**

**else**

**i = a<b?a:b;**

**for(;i>0;i--)**

**{**

**if(a%i==0 && b%i==0)**

**return i;**

**}**

**return 1;**

**}**

**int Gcd2(int a, int b)**

**{//采用辗转相除**

**int r;**

**if(a<0 || b<0)**

**return -1;**

**do{**

**r = a%b;**

**a = b;**

**b =r;**

**}while(r != 0);**

**return a;**

**}**

**int main()**

**{**

**int a,b,t;**

**printf("Input a,b:");**

**scanf("%d,%d",&a,&b);**

**t = Gcd2(a,b);**

**if(t == -1)**

**printf("Input ERRor!\n");**

**else**

**printf("%d和%d的最大公约数是%d\n",a,b,t);**

**return 0;**

**}**

**//分香蕉 p47**

**#include<stdio.h>**

**int Cocount(int n,int m)**

**{//n为堆数，m为水手数**

**int i=1;**

**float x = 1,y;**

**y = n \* x + 1;**

**do{**

**y = y \* n /(n-1) + 1;**

**i++;**

**if(y != (int) y)//y不是整数，x++,重新迭代**

**{**

**x++;**

**y = n \* x + 1;**

**i = 1;**

**}**

**}while(i<m);**

**return (int) y;**

**}**

**int main()**

**{**

**printf("y = %d\n",Cocount(5,3));**

**return 0;**

**}**

**//迭代求平方根**

**#include<stdio.h>**

**#include<math.h>**

**float mysqrt(float x)**

**{**

**float x1,x2;**

**if(x<0)**

**return -1;**

**else if(x == 0)**

**return 0;**

**else{**

**x1 = x/2; x2 =(x1 + x/x1)/2;**

**do{**

**x1 = x2;**

**x2 = (x1 + x/x1)/2;**

**}while(fabs(x1-x2)>= 1e-6);**

**return x2;**

**}**

**}**

**int main()**

**{**

**float a,t;**

**printf("input a:");**

**scanf("%f",&a);**

**t = mysqrt(a);**

**if(t == -1)**

**{**

**printf("Input Error!\n");**

**}**

**else**

**printf("%f平方根是%f\n",a,t);**

**return 0;**

**}**

**//杨辉三角**

**#include<stdio.h>**

**#define N 20**

**void CalculateYH(int a[][N],int n)**

**{**

**int i,j;**

**for(i=0; i<n; i++)**

**{**

**a[i][0] = 1;**

**a[i][i] = 1;**

**}**

**for(i = 2; i<n; i++)**

**{**

**for(j = 1; j<=i-1; j++)**

**{**

**a[i][j] = a[i-1][j-1] + a[i-1][j];**

**}**

**}**

**}**

**void PrintYH(int a[][N], int n)**

**{**

**int i,j;**

**for(i = 0; i<n; i++)**

**{**

**for(j=i+1;j<n;j++)**

**{**

**printf(" ");**

**}**

**for(j=0; j<=i; j++)**

**{**

**printf("%4d",a[i][j]);**

**}**

**printf("\n");**

**}**

**}**

**int main()**

**{**

**int a[N][N] = {0},n;**

**printf("intput n(n<20):");**

**scanf("%d",&n);**

**CalculateYH(a,n);**

**PrintYH(a,n);**

**return 0;**

**}**

**//内蒙古复试程序设计**

**2016年**

**//计算三个数最大数**

**#include<stdio.h>**

**int Max(int a, int b,int c)**

**{**

**return a>b?a:b>c?(a>b?a:b):c;**

**}**

**int main()**

**{**

**int a, b,c;**

**printf("Input a,b,c:");**

**scanf("%d,%d,%d",&a,&b,&c);**

**printf("max number of %d,%d,%d is %d",a,b,c,Max(a,b,c));**

**return 0;**

**}**

**//亦可以排序**

**//**2、求两个数最大公约数最小公倍数

**//最小公倍数**

**#include<stdio.h>**

**int Lcm(int a, int b)**

**{**

**if(a<0 || b<0)**

**return -1;**

**int i;**

**for(i= 1; i<=b; i++)**

**if(i\*a % b == 0)**

**return i\*a;**

**}**

**int main()**

**{**

**int a,b,x;**

**printf("Input a and b:");**

**scanf("%d,%d",&a,&b);**

**x = Lcm(a,b);**

**if(x == -1)**

**printf("Input Error!");**

**else**

**printf("%d和%d的最小公倍数是：%d",a,b,x);**

**return 0;**

**}**

**//计算最大公约数**

**#include<stdio.h>**

**int Gcd1(int a, int b)**

**{//采用穷举法**

**int i;**

**if(a<0 || b<0)**

**return -1;**

**else**

**i = a<b?a:b;**

**for(;i>0;i--)**

**{**

**if(a%i==0 && b%i==0)**

**return i;**

**}**

**return 1;**

**}**

**int Gcd2(int a, int b)**

**{//采用辗转相除**

**int r;**

**if(a<0 || b<0)**

**return -1;**

**do{**

**r = a%b;**

**a = b;**

**b =r;**

**}while(r != 0);**

**return a;**

**}**

**int main()**

**{**

**int a,b,t;**

**printf("Input a,b:");**

**scanf("%d,%d",&a,&b);**

**t = Gcd2(a,b);**

**if(t == -1)**

**printf("Input ERRor!\n");**

**else**

**printf("%d和%d的最大公约数是%d\n",a,b,t);**

**return 0;**

**}**

//3、统计字符串中字母数字空格和其他字符个数

#include<stdio.h>

#define N 80

int main()

{

char s[N];

int i = 0,space\_count =0, num\_count = 0, char\_count = 0,other\_count= 0;

printf("Input string:");

gets(s);

while(s[i] != '\0')

{

if(s[i]>='0' && s[i]<='9')

num\_count++;

else if(s[i]>='a'&&s[i]<='z' || s[i]>='A'&& s[i]<='Z')

char\_count++;

else if (s[i] == ' ')

space\_count++;

else

other\_count++;

}

printf("string cotains %d number, %dchar,%dspace and %d other char\n",num\_count,char\_count,space\_count,other\_count);

return 0;

}

#include<stdio.h>

#define N 80

int main()

{

char s[N];

int i, letter=0,space = 0,digit = 0,other = 0;

printf("input a string:");

gets(s);

for(i=0;s[i]!='\0';i++)

{

if(s[i]>='0' && s[i]<='9')

digit++;

else if(s[i]>='a'&&s[i]<='z' || s[i]>='A'&& s[i]<='Z')

letter++;

else if (s[i] == ' ')

space++;

else

other++;

}

printf("English character :%d\n",letter);

printf("digit character :%d\n",digit);

printf("space character :%d\n",space);

printf("other character :%d\n",other);

return 0;

}

8、输入十进制数转换成n进制数并输出，转换后的结果

#include<stdio.h>

#include<math.h>

#define N 80

int main()

{

int i,t,n,b,r;

char a[N];

char c[] = "ABCDEFGHIJKLMNOPQRSTUVWXYZ";

printf("Input decimal number and r:");

scanf("%d,%d",&n,&r);

t = fabs(n);

for(i=0; t!=0;i++)

{

b = t%r;

if(b>9)

{

a[i] = c[b-10];

}

else

a[i] = b + '0';

t = (t-b)/r;

}

if(n<0)

printf("-");

for(i--;i>=0;i--)

{

printf("%c",a[i]);

}

printf("\n");

return 0;

}

//两个正整数间所有偶数和

#include<stdio.h>

int Sum(int a, int b)

{

int t,max,sum =0;

if(a<=0 || b<=0)

return -1;

t = a<b?a:b;//选出大小

max = a>b?a:b;

for(;t<=max;t++)

{

if(t%2 == 0)

{

sum += t;

}

}

return sum;

}

int main()

{

int a,b,sum;

printf("Input a and b:");

scanf("%d,%d",&a,&b);

sum = Sum(a,b);

if(sum == -1)

printf("Input Error!\n");

else

printf("sum = %d\n",sum);

return 0;

}

C++课后习题

//1.输入三个整数，求出其中最小数（要求使用条件表达式）。

#include<iostream>

using namespace std;

int main()

{

int a,b,c,t;

cout<<"Input a,b,c:";

cin>>a>>b>>c;

t= a<b?a:b<c?(a<b?a:b):c;

cout<<"the minimun of "<<a<<" "<<b<<" "<<c<<" is "<<t<<endl;

return 0;

}

//2.编写一个程序。要求输入一个5位正整数，然后分解出它的每位数字，并将这些数字按间隔2个空格的逆序形式打印输出。例如，用户输入42339，则程序输出如下结果：

9 3 3 2 4

#include<iostream>

using namespace std;

int main()

{

int n;

cout<<"Input a number n(n>0):";

cin>>n;

while(n<=0)

{

cout<<"Input Error!,please reinput:";

cin>>n;

}

cout<<n%10<<" "<<n/10%10<<" "<<n/100%10<<" "<<n/1000%10<<" "<<n/10000<<endl;

return 0;

}

//3．输入一个正整数，使用if语句，判断它的奇偶性。

#include<iostream>

using namespace std;

int main()

{

int a;

cout<<"Input a :";

cin>>a;

if(a%2 == 0)

cout<<a<<" 是偶数"<<endl;

else

cout<<a<<" 是奇数"<<endl;

return 0;

}

4．输入三角形的三条边，判别它们能否形成三角形，若能，则判断是等边、等腰、还是一般三角形

#include<iostream>

#include<math.h>

#define EPS 1e-2

using namespace std;

int main()

{

double a,b,c;

bool flag = true;

cout<<"输入三条边：";

cin>>a>>b>>c;

if(a+b>c && a+c>b && b+c>a)

{

if(a==b||a==c||b==c)

{

if(a==b&&a==c)

{

flag = false;

cout<<"等边";

}

else{

flag = false;

cout<<"等腰";

}

}

if(fabs(a\*a+b\*b-c\*c)<EPS|| fabs(a\*a+c\*c-b\*b)<EPS || fabs(c\*c+b\*b-a\*a)<EPS)

{

flag = false;

cout<<"直角";

}

if(flag)

cout<<"一般";

cout<<"三角形"<<endl;

}

else

{

cout<<"不是三角形"<<endl;

}

return 0;

}

//编写程序，计算0到10整数的平方和立方，然后用制表符整齐格式显示数值表。

#include<iostream>

#include<math.h>

#define EPS 1e-2

using namespace std;

int main()

{

int i,term = 0;

cout<<"\tn"<<"\t平方"<<"\t立方"<<endl;

for(i=1;i<=10;i++)

{

cout<<"\t"<<i<<"\t"<<i\*i<<"\t"<<i\*i\*i<<endl;

}

return 0;

}

编写程序，显示由符号组成的三角形图案。要求程序运行后由用户应答。输出星号三角形的程序运行效果如下：

How many lines? 5

What character? \*

\*

\*\*\*

\*\*\*\*\*

\*\*\*\*\*\*\*

\*\*\*\*\*\*\*\*\*

#include<iostream>

using namespace std;

int main()

{

int i,j,k,n;

char ch;

cout<<"how many lines?";

cin>>n;

cout<<"what character?";

cin>>ch;

for(i=0;i<n;i++)

{

for(j=n;j>i;j--)

cout<<" ";

for(k=0;k<=2\*i;k++)

cout<<ch;

cout<<endl;

}

return 0;

}

编写程序，在100～200之间找出满足用3除余2，用5除余3和用7除余2的所有整数

#include<iostream>

using namespace std;

int main()

{

int i;

for( i=100; i<=200; i++ )

{

if ( ( i % 3 == 2) && ( i % 5 == 3 ) && ( i % 7 == 2 ) )

cout << i << endl;

}

}

设计程序，从键盘输入一系列数据，直到按Ctrl+Z组合键结束输入，然后显示输入的非0数据的个数及这些数据之和

#include<iostream>

using namespace std;

int main()

{

int n,count = 0,sum = 0;

cout<<"input data, end in Ctrl-Z:\n";

while(cin>>n)

{

if(n)

{

count++;

sum += n;

}

}

cout<<"count = "<<count<<" sum = "<<sum<<endl;

return 0;

}

编写程序，输出小于结果50000正整数的阶乘值。想一想，若用while(1) { }构造循环，循环条件是什么？有什么方法可以结束循环？

#include<iostream>

using namespace std;

int main()

{

int i=0,term = 1;

while(1)

{

i++;

term = term \* i;

if(term<=50000)

cout<<i<<"!="<<term<<endl;

else

break;

}

return 0;

}

编写一个程序，输出一张表，内容是1~256范围内每个十进制数对应的二进制数、八进制数和十六进制数形式。第1行是标题，用制表符整齐格式（根据输出情况调整）显示数值表。提示，八进制数和十六进制数可以直接输出。

decimal binary octal hexadecimal

1 1 1 1

2 10 2 2

3 11 3 3

……

【解答】

#include<iostream>

#include<iomanip>

using namespace std;

int main()

{

int i,k,t,m;

cout<<"decimal\t binary\toctal\thexadecimal\n";

for(i=1; i<=256; i++)

{

cout<<dec<<i<<"\t";

t=i;

m=0; //标志，判断是否输出1

for(k=256; k>=1; k/=2) //从最高位开始处理

{

if(t>=k)

{

cout<<1; //填写1

t=t-k; //等待处理的剩余数

m=1; //记录输出了最高位的1

}

else

if(m) cout<<0; //如果已经输出1，就输出有效的0

}

if(i<128) cout<<'\t'; //格式调整

cout<<"\t"<<oct<<i<<"\t"<<hex<<i<<endl;

}

}

//第二种方式

#include<iostream>

#include<math.h>

#define N 50

using namespace std;

void print(int n,int r)

{

int i,t,b;

char a[N];

char c[] = "ABCDEFGHIJKLMNOPQRSTUVWXYZ";

t = fabs(n);

for(i=0; t!=0;i++)

{

b = t%r;

if(b>9)

{

a[i] = c[b-10];

}

else

a[i] = b + '0';

t = (t-b)/r;

}

if(n<0)

cout<<"-";

for(i--;i>=0;i--)

{

cout<<a[i];

}

}

int main()

{

int i,k,t,m;

cout<<"decimal\tbinary\t\toctal\thex\n";

for(i=1; i<=256; i++)

{

cout<<i;

cout<<"\t";

print(i,2);

if(i>127)

cout<<"\t";

else

cout<<"\t\t";

print(i,8);

cout<<"\t";

print(i,16);

cout<<endl;

}

}

输入一个整数，输出该整数的所有素数因子。例如，输入120，输出为2、2、2、3和5。

#include<iostream>

using namespace std;

int main()

{

int i = 2,n;

cout<<"Input the number:";

cin>>n;

while(n>1)

{

if(n%i == 0)

{

cout<<i<<" ";

n = n/i;

}

else

i++;

}

return 0;

}

已知*x*=0, 10, 20, …, 180，求sin*x*、cos*x*和tan*x*的值

#include<iostream>

#include<math.h>

#include<iomanip>

#define pi 3.1415926

using namespace std;

int main()

{

double x,t,y1,y2,y3;

cout << setw(2) << "x" << setw(15) << "sin(x)" << setw(15)

<< "cos(x)" << setw(15) << "tan(x)" << endl;

for(x=10;x<=180;x += 10)

{

t = x \* pi/180;

cout << setw(2) << x<< setw(15) << sin(t)<< setw(15)

<< cos(t)<< setw(15) << tan(t)<< endl;

}

return 0;

}

求100～999之间的水仙花数。所谓水仙花数，是指一个三位数，它的每位数字的立方之和等于该数。例如，因为153=1+5+3，所以153为水仙花数。

#include<iostream>

using namespace std;

int main()

{

int n,a,b,c;

for(n=100;n<=999;n++)

{

a = n/100;

b = n/10%10;

c = n%10;

if(a\*a\*a + b\*b\*b + c\*c\*c == n)

cout<<n<<" ";

}

return 0;

}

求1000以内的所有完数。所谓完数，是指一个数恰好等于它的所有因子之和。例如，因为6=1+2+3，所以6为完数

#include<iostream>

using namespace std;

int main()

{

int i,j,s;

for( i=1; i<=1000; i++ )

{

s = 0;

for( j=1; j<i; j++ )

if ( i % j == 0 )

{

s = s + j;

}

if ( i == s )

cout << i << endl;

}

return 0;

}

已知*XYZ*+*YZZ*=532，其中*X*，*Y*和*Z*为数字，编写程序求出*X*、*Y*和*Z*的值。

#include<iostream>

using namespace std;

int main()

{

int x,y,z,i;

for( x=1; x<=9; x++ )

for( y=1; y<=9; y++ )

for( z=0; z<=9; z++ )

{

i = 100\*x + 10\*y + z + 100\*y + 10\*z + z;

if ( i == 532 )

cout<<"x="<<x<<'\t'<<"y="<<y<<'\t'<<"z="<<z<<endl;

}

}

//蛇形矩阵

#include <iostream>

#include <cstring>

#define MAXN 10

using namespace std;

int a[MAXN][MAXN];

int main()

{

int n,x,y,t=0;

cin>>n;

memset(a,0,sizeof(a));

x=0;

y=0;

t=a[x][y]=1;

while (t<n\*n)

{

while (y<n-1 && !a[x][y+1])

a[x][++y]=++t;

while (x<n-1 && !a[x+1][y])

a[++x][y]=++t;

while (y>=1 && !a[x][y-1])

a[x][--y]=++t;

while (x>=1 && !a[x-1][y])

a[--x][y]=++t;

}

for (x=0;x<n;x++)

{

int i=0;

for(y=0;y<n;y++)

{

i++;

if (i!=n)

cout<<a[x][y]<<"\t";

else

cout<<a[x][y]<<endl;

}

}

return 0;

}