

```
1 #include<stdio.h>
2
3 int main() {
4     int n;
5     printf("Enter the number = ");
6     scanf ("%d", &n);
7     int ans=0;
8     while (n!=0) {
9         ans*=10;
10        ans+=(n%10)+1)%10;
11        n/=10;
12    }
13    n=ans;
14    ans=0;
15    while (n!=0) {
16        ans*=10;
17        ans+=(n%10);
18        n/=10;
19    }
20    printf ("Answer is = %d", ans);
21    return 0;
22}
23
```

```
1 #include<stdio.h>
2
3
4 int main() {
5
6     double d, dm, df, di, dcm;
7
8     printf("Distance in km = ");
9
10    scanf("%lf", &d);
11    dm = d*1000;
12    df = dm*3.28084;
13    di = dm*39.37;
14    dcm = dm*100;
15    printf("Distance in meter = %.0lf\nDistance in feet
= %.2lf\nDistance in inches = %.2lf\nDistance in
centimeters = %.0lf\n", dm, df, di, dcm);
16    return 0;
17 }
18
```

```
1 #include<stdio.h>
2
3
4 int main() {
5
6     double d, dm, df, di, dcm;
7
8     printf("Distance in km = ");
9
10    scanf("%lf", &d);
11    dm = d*1000;
12    df = dm*3.28084;
13    di = dm*39.37;
14    dcm = dm*100;
15    printf("Distance in meter = %.0lf\nDistance in feet
= %.2lf\nDistance in inches = %.2lf\nDistance in
centimeters = %.0lf\n", dm, df, di, dcm);
16    return 0;
17 }
18
```

```
1 #include<stdio.h>
2 int main() {
3
4     int m1,m2,m3,m4,m5;
5     float prcnt;
6     printf ("Marks in subject 1 = ");
7     scanf ("%d",&m1);
8     printf ("Marks in subject 2 = ");
9     scanf ("%d",&m2);
10    printf ("Marks in subject 3 = ");
11    scanf ("%d",&m3);
12    printf ("Marks in subject 4 = ");
13    scanf ("%d",&m4);
14    printf ("Marks in subject 5 = ");
15    scanf ("%d",&m5);
16
17    int total = m1+m2+m3+m4+m5;
18    prcnt = ((float)total/500)*100;
19    printf ("Total marks = %d\nPercentage =
20 %f",total,prcnt);
21
22    return 0;
23 }
24
```

```
1 #include<stdio.h>
2 int main() {
3
4     double f,c;
5     printf("Temperature in Fahrenheit = ");
6     scanf("%lf", &f);
7
8     c = ((f-32)*5)/9;
9     printf("Temperature in celsius = %lf",c);
10
11    return 0;
12 }
13
14
```

```
1 #include<stdio.h>
2 int main() {
3
4     float l,w,r,areal,area2,per,circ;
5     #define pi 3.1415
6
7     printf("Length of rectangle = ");
8     scanf("%f",&l);
9     printf("Width of rectangle = ");
10    scanf("%f",&w);
11    printf("Radius of circle = ");
12    scanf("%f",&r);
13
14    areal = l*w;
15    area2 = pi*r*r;
16    per = 2*(l+w);
17    circ = 2*pi*r;
18    printf("Area of Rectangle = %f\nPerimeter of
Rectangle = %f\nArea of Circle = %f\nCircumference of
circle = %f",areal,per,area2,circ);
19    return 0;
20 }
21
```

```
1 #include<stdio.h>
2 int main() {
3
4     double num1, num2;
5     printf("number 1 = ");
6     scanf("%lf", &num1);
7     printf("number 2 = ");
8     scanf("%lf", &num2);
9     double temp = num1;
10    num1 = num2;
11    num2 = temp;
12    printf("Number after interchange.\nNumber 1 =
%lf\nNumber 2 = %lf", num1, num2);
13    return 0;
14 }
15
```

```
1 #include<stdio.h>
2 int main() {
3     int num;
4     printf("Number = ");
5     scanf("%d", &num);
6     int sum = 0;
7     while(num>9) {
8         sum+=num%10;
9         num/=10;
10    }
11    sum+=num;
12    printf("Sum of digit = %d", sum);
13    return 0;
14 }
15
```

```
1 #include<stdio.h>
2 int main() {
3
4     int num,ans=0;
5     printf("Number = ");
6     scanf ("%d",&num);
7     printf("Answer[can contain zero at first] = ");
8     while(num>9){
9         printf ("%d",num%10);
10        ans*=10;
11        ans+=num%10;
12        num/=10;
13    }
14    ans*=10;
15    ans+=num%10;
16    printf ("%d\n",ans);
17    printf ("Answer[without zero at first] = %d",ans);
18    printf ("%d\n",num);
19    return 0;
20 }
21
```

```
1 #include<stdio.h>
2 int main() {
3     int n;
4     printf("Enter four digit number = ");
5     scanf("%d", &n);
6     int sum = n%10 + n/1000;
7     printf("Sum of first and last digit is = %d", sum);
8     return 0;
9 }
10
```

```
1 #include<stdio.h>
2 int main() {
3     int cp,sp,pl;
4     printf("Cost price = ");
5     scanf ("%d",&cp);
6     printf("Selling price = ");
7     scanf ("%d",&sp);
8
9     if(sp>cp)
10        printf("Profit = %d",sp-cp);
11    else if(sp<cp)
12        printf("Loss = %d",cp-sp);
13    else
14        printf("No loss or profit");
15    return 0;
16 }
17
18 }
```

```
1 #include<stdio.h>
2 int main() {
3     int n;
4     printf("Enter number = ");
5     scanf("%d", &n);
6     if(n%2==0)
7         printf("%d is a EVEN number",n);
8     else
9         printf("%d is a ODD number",n);
10    return 0;
11 }
12
```

```
1 #include<stdio.h>
2 int main() {
3     int y;
4     printf("Enter year = ");
5     scanf("%d", &y);
6     if(y%400==0)
7         printf("%d is a Leap year\n",y);
8     else if(y%4==0 && y%100!=0)
9         printf("%d is a Leap year\n",y);
10    else
11        printf("%d is not a Leap year\n",y);
12    return 0;
13 }
14
```

```
1 #include<stdio.h>
2 int main() {
3     int n;
4     printf("Enter number = ");
5     scanf("%d", &n);
6     int ans=0,temp=n;
7     while(n!=0){
8         ans*=10;
9         ans+=n%10;
10        n/=10;
11    }
12    if(ans==temp)
13        printf("Given and reversed number are SAME");
14    else
15        printf("Given and reversed number are DIFFERENT");
16    return 0;
17 }
18
```

```
1 #include<stdio.h>
2 int main() {
3     double x1,y1,x2,y2,x3,y3;
4     printf("x1 = ");
5     scanf("%lf",&x1);
6
7     printf("y1 = ");
8     scanf("%lf",&y1);
9
10    printf("x2 = ");
11    scanf("%lf",&x2);
12
13    printf("y2 = ");
14    scanf("%lf",&y2);
15
16    printf("x3 = ");
17    scanf("%lf",&x3);
18
19    printf("y3 = ");
20    scanf("%lf",&y3);
21    double m1=-1,m2=-1;
22    if(x2-x1!=0) m1 = (y2-y1)/(x2-x1);
23    if(x3-x2!=0) m2 = (y3-y2)/(x3-x2);
24    if(m1==m2) {
25        printf("All points are in SAME line");
26    }
27    else{
28        printf("All points are NOT IN SAME line");
29    }
30    return 0;
31}
32
```

```
1 #include<stdio.h>
2 int main() {
3
4     char ch;
5     printf("Enter a character = ");
6     scanf ("%c",&ch);
7     int val = (int)ch;
8     if(val>=65 && val<=90) printf("Given character is a
CAPITAL letter\n");
9     else if(val>=97 && val<=122) printf("Given character
is a SMALL letter\n");
10    else if(val>=48 && val<=57) printf("Given character
is a DIGIT\n");
11    else printf("Given character is a SPECIAL symbol\n");
12    return 0;
13 }
14
```

```
1 #include<stdio.h>
2 int main() {
3
4     double hn,cc,ts;
5     printf("Hardness of steel = ");
6     scanf ("%lf",&hn);
7     printf("Carbon content of steel = ");
8     scanf ("%lf",&cc);
9     printf("Tensile strength of steel = ");
10    scanf ("%lf",&ts);
11
12    int c1 = hn>50,c2 = cc<.7,c3 = ts>5600,sg;
13    if(c1 && c2 &&c3) sg=10;
14    else if(c1 && c2 && !c3) sg = 9;
15    else if(!c1 && c2 && c3) sg = 8;
16    else if(c1 && !c2 && c3) sg = 7;
17    else if(c1 || c2 || c3) sg = 6;
18    else sg = 5;
19
20    printf("Grade of steel is %d",sg);
21    return 0;
22 }
23
```

```
1 #include<stdio.h>
2 int main() {
3
4     int n;
5     printf("Enter number of days = ");
6     scanf("%d", &n);
7     if(n==0) {
8         printf("NO fine");
9     }
10    else if(n<=5) {
11        printf("Fine = 50 paise");
12    }
13    else if(n<=10) {
14        printf("Fine = 1 rupee");
15    }
16    else if(n<30) {
17        printf("Fine = 5 rupee");
18    }
19    else{
20        printf("Membership is cancelled");
21    }
22
23    return 0;
24 }
25
```

```
1 #include<stdio.h>
2 int main() {
3
4     double a,b,c,m;
5     printf("Length of side - 1 = ");
6     scanf ("%lf",&a);
7     printf("Length of side - 2 = ");
8     scanf ("%lf",&b);
9     printf("Length of side - 3 = ");
10    scanf ("%lf",&c);
11
12    m = (a>=b)? (a>=c?a:c) : (b>=c?b:c);
13    if((a+b+c-m)>m) printf ("VALID triangle");
14    else printf ("INVALID triangle");
15    //printf("%lf\n",m);
16    return 0;
17
18 }
19
```

```

1  #include<stdio.h>
2  #include<math.h>
3
4  int main() {
5
6      double a,b,c,m;
7      printf("Length of side - 1 = ");
8      scanf("%lf",&a);
9      printf("Length of side - 2 = ");
10     scanf("%lf",&b);
11     printf("Length of side - 3 = ");
12     scanf("%lf",&c);
13
14     m = (a>=b) ? (a>=c?a:c) : (b>=c?b:c);
15
16     int c1 = a==b, c2 = b==c, c3 = a==c;
17     if(a+b+c-m<=m) {
18         printf("Invalid triangle");
19     }
20     else if(c1 && c2)
21         printf("Equilateral triangle");
22     else if(c1 || c2 || c3) {
23         if(pow(m,2) == -pow(m,2) + pow(a,2) + pow(b,2)
+ pow(c,2)) {
24             printf("Isosceles and Right angled both");
25         }
26         else{
27             printf("Isosceles triangle");
28         }
29     }
30     else{
31         if(m*m == - m*m + a*a + b*b+ c*c) {
32             printf("Right angled and Scalene both");
33         }
34         else{
35             printf("Scalene triangle");
36         }
37     }
38
39     return 0;
40 }
41

```

```
1 #include<stdio.h>
2 int main() {
3
4     char ch;
5     printf("Enter a character = ");
6     scanf ("%c",&ch);
7
8     ch>='a' && ch<='z' ? printf("Lowercase alphabet\n")
9 : printf("Not a lowercase alphabet\n");
10    (ch>='a' && ch<='z' || ch>='0' && ch<='9' || ch>='A'
&& ch<='Z') ? printf("Not a special
11    character\n") :printf("Special character\n");
12
13    return 0;
14 }
15
```

```
1 #include<stdio.h>
2 int main() {
3
4     int y;
5     printf("Enter year = ");
6     scanf("%d", &y);
7
8     (y%4==0 && y%100!=0 || y%400==0) ? printf("Leap
year\n") : printf("Not leap year\n");
9     return 0;
10 }
11
```

```
1 #include<stdio.h>
2 int main() {
3
4     int a,b,c;
5     printf("Enter a num1 = ");
6     scanf("%d",&a);
7     printf("Enter a num2 = ");
8     scanf("%d",&b);
9     printf("Enter a num3 = ");
10    scanf("%d",&c);
11    int m = (a>=b ? (a>=c ? a : c) : (b>=c ? b : c));
12    printf("Largest number is = %d\n",m);
13    return 0;
14 }
15
```

```
1  /*
2   Write a program to calculate overtime pay of 10
3   employees.
4   Overtime is paid at the rate of Rs. 12.00 per hour
5   for every
6   hour worked above 40 hours. Assume that employees do
7   not
8   work for fractional part of an hour.
9  */
10
11 #include<stdio.h>
12 int main() {
13     double e;
14     for(int i=0;i<10;i++) {
15         printf("Working hour of employee-%d = ",i+1);
16         scanf("%lf",&e);
17         double ovp = (e-40)*12; //ovp = overtime_pay
18         if(ovp<0) ovp=0;
19         printf("Overtime pay of employee-%d =
20             %.0lf\n",i+1,ovp);
21     }
22     return 0;
23 }
```

```
1  /*
2   Write a program to find the factorial value of any
3   number
4   entered through the keyboard.
5 */
6 #include<stdio.h>
7 int main() {
8
9     int n;
10    long long int ans=1, i=1;
11    printf("Enter the number(n<=20) = ");
12    scanf("%d", &n);
13    if(n<=20) {
14        while(i<=n) {
15            ans*=i;
16            i++;
17        }
18        printf("Factorial of %d is %lld\n", n, ans);
19    }
20    else{
21        printf("Number shouldn't exceed 20\n.");
22    }
23
24    return 0;
25 }
```

```
1  /*
2   Two numbers are entered through the keyboard. Write a
3   program to find the value of one number raised to
4   the power
5   of another.
6
7 #include<stdio.h>
8 #include<math.h>
9 int main() {
10    int a,b;
11    printf("Enter number-1 = ");
12    scanf("%d",&a);
13    printf("Enter number-2 = ");
14    scanf("%d",&b);
15    printf("%d^%d = %lf and \n%d^%d =
16    %lf\n",a,b,pow ((double)a, (double)b),b,a,pow ((double)b, (do
17   uble)a));
18    return 0;
19 }
```

```
1  /*
2   Write a program to print all the ASCII values and
3   their
4   equivalent characters using a while loop. The ASCII
5   values
6   vary from 0 to 255.
7 */
8 #include<stdio.h>
9 int main() {
10     int i=0;
11     printf("ASCII Value\tEquivalent Character\n");
12     while(i<=255) {
13         printf("%d\t%c\n", i, i);
14         i++;
15     }
16     return 0;
17 }
18
```

```
1  /*
2   Write a program to print out all Armstrong numbers
3   between
4   1 and 500. If sum of cubes of each digit of the
5   number is
6   equal to the number itself, then the number is
7   called an
8   Armstrong number. For example, 153 = ( 1 * 1 * 1 ) +
9   ( 5 * 5
10  * 5 ) + ( 3 * 3 * 3 )
11 */
12 #include<stdio.h>
13 int main()
14 {
15     int i=1,t=1;
16     printf("All Armstrong digits are = ");
17     while(i<=500)
18     {
19         int n=i,ans=0;
20         while(n)
21         {
22             int dig = n%10;
23             n/=10;
24             ans+=(dig*dig*dig);
25         }
26         if(ans==i)
27         {
28             if(!t)
29             {
30                 printf(", ");
31             }
32             t=0;
33             printf("%d",i);
34         }
35     }
36 }
```

```

1  /*
2   Write a program for a matchstick game being played
3   between
4   the computer and a user. Your program should ensure
5   that the
6   computer always wins. Rules for the game are as
7   follows:
8       - There are 21 matchsticks.
9       - The computer asks the player to pick 1, 2, 3,
10      or 4
11      matchsticks.
12      - After the person picks, the computer does its
13      picking.
14      - Whoever is forced to pick up the last matchstick
15      loses the game.
16 */
17 #include<stdio.h>
18 int main()
19 {
20
21     int stc = 21,n,fm=1,ps;// stc = sticks, fm = first
22     move ps = picked sticks
23     printf("Remaining sticks = 21\n");
24     while(stc>0)
25     {
26         while(1)
27         {
28             printf("Number of sticks you want to
29             pick[1,2,3,4] = ");
30             scanf("%d",&n);
31             if(n>=1 && n<=4)
32             {
33                 if(n>stc) printf("Number of sticks can't
34                 be greater than remaining sticks\n\n");
35                 else break;
36             }
37             else printf("Number of sticks should be
38             between 1 to 4\n\n");
39             stc-=n;
40             printf("\nYou picked %d sticks\nRemaining sticks
41             = %d\n",n,stc);
42             if(stc<=0) printf("You LOST\n");
43             else
44             {
45                 ps = 5-n;
46                 stc -= ps;
47                 printf("Computer picked %d sticks\n",ps);
48                 printf("Remaining sticks = %d\n\n",stc);
49             }
50         }
51     }
52
53     return 0;
54 }
```

```
1  /*
2   Write a program to enter the numbers till the user
3   wants and
4   at the end it should display the count of positive,
5   negative and
6   zeros entered
7 */
8 #include<stdio.h>
9 int main(){
10    long long int n;
11    int count,p=0,nn=0,z=0; //p = positive, n =
negative, z = zero
12    printf("Total number of input = ");
13    scanf("%d",&count);
14    int i=0;
15    while(i<count){
16        printf("Enter number-%d = ",i+1);
17        scanf("%lld",&n);
18        if(n>0) p++;
19        else if(n<0) nn++;
20        else z++;
21        i++;
22    }
23    printf("Positive = %d\tNegative = %d\tZeros =
%d\n",p,nn,z);
24    return 0;
25 }
```

```
1  /*
2   Write a program to find the octal equivalent of the
3   entered
4   number.
5 */
6 #include<stdio.h>
7 int main() {
8     long long int n,ans=0,nn,m=1;
9     printf ("Enter your number = ");
10    scanf ("%lld",&n);
11    nn=n;
12    while (n) {
13        ans += (n%8)*m;
14        n/=8;
15        m*=10;
16    }
17    printf ("%lld in Octal %lld\n",nn,ans);
18    return 0;
19 }
```

```
1  /*
2   Write a program to find the range of a set of
3   numbers. Range
4   is the difference between the smallest and biggest
5   number in
6   the list.
7 */
8 #include<stdio.h>
9 int main(){
10    int n;
11    long long int num,min=9223372036854775807,max=0;
12    printf("Length/Size of the list = ");
13    scanf("%d",&n);
14    int i=0;
15    while(i<n){
16        printf("Enter number-%d = ",i+1);
17        scanf("%lld",&num);
18        min = num<min ? num : min;
19        max = num>max ? num : max;
20        i++;
21    }
22    if(n){
23        printf("Max = %lld Min = %lld\nRange =
24 %lld\n",max,min,max-min);
25    }
26    else{
27        printf("Range = Invalid\n");
28    }
29    return 0;
30 }
```

```
1  /*
2   *          Write a program to print all prime numbers from 1 to
3   *          300.
4   *          (Hint: Use nested loops, break and continue)
5   */
6  #include<stdio.h>
7  #include<math.h>
8  int main(){
9      int ft=1;//ft = first time
10     printf("All prime number between 1 to 300 are = ");
11     for(int i=2;i<301;i++) {
12         if(i!=2 && i%2==0) continue;
13         int j=2,check=1;
14         while(j<(int)sqrt((double)i)+1) {
15             if(i%j==0) {
16                 check = 0;
17                 break;
18             }
19             j++;
20         }
21         if(check) {
22             if(ft) {
23                 printf("%d",i);
24                 ft = 0;
25             }
26             else{
27                 printf(", %d",i);
28             }
29         }
30     }
31     return 0;
32 }
```

```
1  /*
2   Write a program to fill the entire screen with a
3   smiling face.
4   The smiling face has an ASCII value 1.
5   */
6 #include<stdio.h>
7 int main() {
8     int d=1;
9     for(int i=0;i<13000;i++) { //output using infinite
10        loop was terrible
11        printf("%c",d);
12    }
13    //compiler not showing smiling face
14    return 0;
15 }
```

```
1  /*
2   Write a program to add first seven terms of the
3   following
4   series using a for loop:
5   1/1! +2/2!+3/3!+.....
6 */
7 #include<stdio.h>
8 int main(){
9     double ans=0,fact=1;
10    for(int i=1;i<8;i++){
11        fact*=i;
12        ans+=(double)i/fact;
13    }
14    printf("Sum of first 7 terms = %.3lf\n",ans);
15 }
16
```

```
1  /*
2   Write a program to generate all combinations of 1, 2
3   and 3
4   using for loop.
5 */
6 #include<stdio.h>
7 int main() {
8
9     printf("All combinations of 1,2 and 3 are:\n");
10    for(int i=1;i<4;i++) {
11        for(int j=1;j<4;j++) {
12            if(j==i) continue;
13            for(int k=1;k<4;k++) {
14                if(k==i || k==j) continue;
15                printf("%d %d %d\n",i,j,k);
16            }
17        }
18    }
19    return 0;
20 }
```

```
1  /*
2   According to a study, the approximate level of
3   intelligence of
4   a person can be calculated using the following
5   formula:
6   i = 2 + ( y + 0.5 x )
7   Write a program, which will produce a table of
8   values of i, y
9   and x, where y varies from 1 to 6, and, for each
10  value of y, x
11  varies from 5.5 to 12.5 in steps of 0.5.
12 */
13 #include<stdio.h>
14 int main() {
15     printf("\ty\t x\t i\n\n");
16     int counter=0;
17     for(int i=1;i<7;i++){//i=y
18         for(double j=5.5;j<13;j+=.5){//j=x
19             counter++;
20             if(counter==8){
21                 printf("\t %d\t %.1lf",i,j);
22             }
23             else{
24                 printf("\t \t %.1lf",j);
25             }
26             j>9.5 ? printf(" --> ") : printf(" ----> ");
27             printf("%.2lf\n",2+(i+.5*j));
28         }
29     }
30 }
31
```

```
1  /*
2   Write a program to produce the following output:
3
4   A B C D E F G F E D C B A
5   A B C D E F   F E D C B A
6   A B C D E       E D C B A
7   A B C D           D C B A
8   A B C             C B A
9   A B               B A
10  A                   A
11 */
12 #include<stdio.h>
13 int main()
14 {
15
16     int line=0,sp=0;
17     while(line<7)
18     {
19         for(int i=65; i<72-line; i++)
20         {
21             printf("%c ",i);
22         }
23         for(int i=0;i<sp;i++) {
24             if(line==0){break;}
25             else{ printf(" ");}
26         }
27         for(int i=71-line;i>64;i--) {
28             if(line==0 && i==71) continue;
29             printf("%c ",i);
30         }
31         printf("\n");
32         if(line==0) sp+=2;
33         else sp+=4;
34         line++;
35     //    line=0 ? sp=sp+2 : sp=sp+4;
36     }
37     return 0;
38 }
39
```

```
1  /*
2   Write a program to fill the entire screen with
3   diamond and
4   heart alternatively. The ASCII value for heart is 3
5   and that of
6   diamond is 4.
7 */
8 #include<stdio.h>
9 int main() {
10     int i=0, alt=1, d=4, h=3;
11     while(i<10000) {
12         alt==1 ?printf("%c", d) : printf("%c", h);
13         alt = (alt+1)%2;
14         i++;
15     }
16 }
17 }
```

```
1  /*
2   Write a program to print the multiplication table of
3   the
4   number entered by the user. The table should get
5   displayed in
6   the following form.
7   29 * 1 = 29
8   29 * 2 = 58
9  */
10 #include<stdio.h>
11 int main(){
12     long long int n;
13     printf("Enter a number = ");
14     scanf("%lld",&n);
15     printf("Multiplication table of %lld:\n",n);
16     for(int i=1;i<11;i++) {
17         printf("%lld * %d = %lld\n",n,i,n*i);
18     }
19 }
```

```
1  /*
2   Write a program to produce the following output:
3   1
4   2     3
5   4     5     6
6   7     8     9     10
7 */
8
9 #include<stdio.h>
10 int main() {
11     int line=0, st=1, tab=3;
12     while(line<4) {
13         printf("\t");
14         for(int j=0;j<tab;j++) printf("\t");
15         tab--;
16         for(int i=1;i<line+2;i++) {
17             printf("%d\t\t",st);
18             st++;
19         }
20         printf("\n\n"); //1 line space between each line
21         line++;
22     }
23     return 0;
24 }
```

```

1  /*
2   Write a program to produce the following output:
3           1
4           1   1
5           1   2   1
6           1   3   3   1
7  1     4     6     4     1
8
9 */
10 #include<stdio.h>
11 int main(){
12     int line=0;
13     while(line<5){
14         for(int i=0;i<4-line;i++) {
15             printf(" ");
16         }
17         for(int i=0;i<line+1;i++) {
18             if(i==0 || i==line){
19                 printf("1 "); //have used 2 space instead
of tab.
20             }
21             else{
22                 int max,min,ans=1,temp=1;
23                 max = i>(line-i) ? i : line-i;
24                 min = line-max;
25                 for(int i=max+1;i<line+1;i++) ans*=i;
26                 for(int i=1;i<min+1;i++) temp*=i;
27                 printf("%d
",ans/temp); //nth[row=i,col=j] term of pascal triangle =
(i-1)C(j-1)
28             }
29         }
30         line++;
31         printf("\n");
32     }
33     return 0;
34 }

```

```
1  /*
2   The natural logarithm can be approximated by the
3   following
4   series.
5   ((x-1)/x) + (1/2)*((x-1)/x)^2 + (1/2)*((x-1)/x)^3 +
6   (1/2)*((x-1)/x)^2 + ...
7   If x is input through the keyboard, write a program to
8   calculate the sum of first seven terms of this series.
9 */
10
11 #include<stdio.h>
12 int main() {
13     double ans=0, x;
14     printf("Enter x = ");
15     scanf("%lf", &x);
16     if(x==0) {
17         printf("x can't be zero\n");
18     }
19     else{
20         double com = (x-1)/x;
21         ans=com;
22         for(int i=1;i<7;i++) {
23             ans+=.5*pow(com,i+1);
24         }
25         printf("Sum of first seven terms = %lf\n", ans);
26     }
27     return 0;
}
```

```
1   #include<stdio.h>
2
3   int main()
4   {
5       int n = 13;
6       scanf("%d", &n);
7       int m = n / 2 + 1;
8       for (int i = 1; i <= m; i++) {
9           printf("%c ", 'A' + i - 1);
10      }
11      for (int i = m - 1; i >= 1; i--) {
12          printf("%c ", 'A' + i - 1);
13      }
14      printf("\n");
15      for (int i = 1; i < m; i++) {
16          for (int j = 1; j <= m - i; j++) {
17              printf("%c ", 'A' + j - 1);
18          }
19          for (int j = 1; j <= i * 2 - 1; j++) {
20              printf("  ");
21          }
22          for (int j = m - i; j >= 1; j--) {
23              printf("%c ", 'A' + j - 1);
24          }
25      printf("\n");
26  }
27 }
28 }
```