Some Examples

Integer Exponent Function

#include <stdio.h>

Parameters

int power(int x, int n)
{
int i,SUM;

SUM=1;
SUM=1;
for(i=1;i<=n;i++) SUM=SUM*x;
return(SUM);
}

```
main()
{
int x,y,z,n,SUM;

printf("Values of x,y,z and n ? \n");
scanf("%d%d%d%d",&x,&y,&z,&n);
printf("x=%d y=%d z=%d n=%d \n",x,y,z,n);

SUM = power(x,n) + power(y,n) + power(z,n);

printf("The result is %d \n",SUM);
}
```

Values of x,y,z and n ?
x=1 y=2 z=3 n=4
The result is 98

Parameter passed as a value

```
#include <stdio.h>

void swap (int a, int b)
{
int temp;

temp=a;
a=b;
b=temp;
}
```
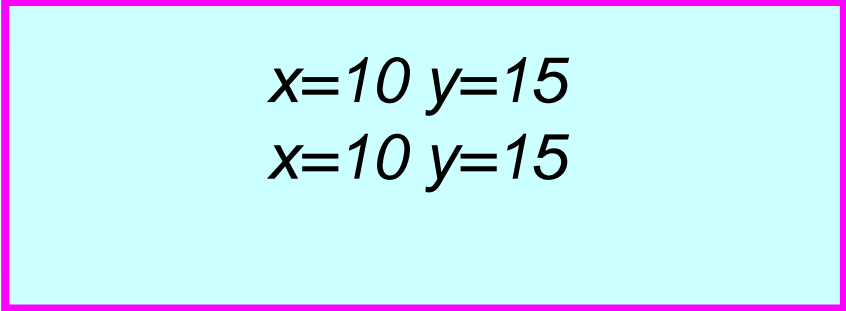
```
main()
{
int x,y;



x=10;  y=15;
printf("x=%d y=%d \n",x,y);
swap(x,y);
printf("x=%d y=%d \n",x,y);
}
```

> *x=10 y=15*
> *x=10 y=15*

Global vs. Local

```c
#include <stdio.h>

 /* These are global variables */
int a,b,c;

process_1(int b)
{
int a;
/* Both a and b are local variables */

a=b;
printf("Value of a is %d \n",a);
}
```

```c
process_2()
{
/* a and b are global variables*/

a=b;
printf("Value of a is %d \n",a);
}

main()
{
int a;
/* a is a local variable but
b is the global one */

a=4; b=5;
process_2(); process_1(10);
printf("Value of a is %d \n",a);
}
```

Value of a is 5
Value of a is 10
Value of a is 4

Use of 'extern'

```c
#include <stdio.h>
#define PI 3.14

extern double sin(double);
extern double cos(double);

main()
{
double R,theta,x,y;

printf("Give polar co-ordinate values of R and theta \n");
scanf("%lf%lf",&R,&theta);
printf("R=%lf theta=%lf\n",R,theta);

theta=PI*theta/1
x=R*cos(theta);
y=R*sin(theta);

printf("Cartesian coordinates: x=%lf y=%lf \n",x,y);
}
```

<math.h> NOT included.

$cc prog.c -lm

Give polar co-ordinate values of R and theta
R=3.000000 theta=60.000000
Cartesian coordinates: x=1.501379 y=2.597280

Date Conversion from Indian to US Convention

```
#include <stdio.h>
#include <string.h>

int conv_date(char indian[ ],char us[ ])
{
  if((strlen(indian)!=8) || (indian[2]!='/') || (indian[5]!='/'))    return 0;

  us[0]=indian[3]; us[1]=indian[4]; us[2]='-';
  us[3]=indian[0]; us[4]=indian[1]; us[5]='-';

if(indian[6]>'4') { us[6]='1'; us[7]='9';}
      else        { us[6]='2'; us[7]='0';}

  us[8]=indian[6];
  us[9]=indian[7];
  us[10]='\0';

  return 1;
}
```

Return if date not given properly

Swap date and month fields. Replace '/' by '-'

Convert 2 digit year to 4 digit one

Append '\0' to make it a string.

```
main()
{
  char ind[9], US[11];

  printf("Give date in Indian convention: \n");
  scanf("%s",ind);

  If (conv_date(ind,US))
   printf("Converted date in US convention : %s \n",US);
  else    printf("Error in Input Format (dd/mm/yy) \n");
}
```

Give date in Indian convention:
24/09/06
Converted date in US convention : 09-24-2006

Give date in Indian convention:
23/03/95
Converted date in US convention : 03-23-1995

Compare two strings

#include <stdio.h>

Parameters passed as character array

int my_strcmp(char s1[ ],char s2[ ])
{
 int i=0;

Compare character pairs till the end of a string

    while(s1[i]!='\0' && s2[i]!='\0'){
      if(s1[i]!=s2[i]) return(s1[i]-s2[i]);
      else i++;
    }
 return(s1[i]-s2[i]);
}

Return immediately if they are not equal.

```
main()
{
 char string1[100],string2[100];

 printf("Give two strings \n");
 scanf("%s%s",string1,string2);


 printf("Comparison result : %d \n",
    my_strcmp(string1,string2));
}
```

Give two strings
IITKGP IITMUMBAI
Comparison result : -2

Give two strings
KOLKATA KOLKATA
Comparison result : 0