

//Write a program to find the addition, subtraction, multiplication, division if two numbers.

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
int r1,r2,r3,r4,num1,num2;
```

```
num1=11,num2=9;
```

```
printf("\n num1 = %d num2 = %d",num1,num2);
```

```
r1=num1+num2;
```

```
printf("\n num1 + num2 = %d ",r1);
```

```
r2=num1-num2;
```

```
printf("\n num1 - num 2 = %d",r2);
```

```
r3=num1*num2;
```

```
printf("\n num1 * num2 = %d",r3);
```

```
r4=num1/num2;
```

```
printf("\n num1 / num2 = %d",r4);
```

```
getch();
```

```
return 0;
```

```
}
```

//Write a Program to print area of circle using #define preprocessor.

```
#include<stdio.h>
#include<conio.h>
#define PI 3.14
int main()
{
    int radius;
    float area;
    printf("Enter radius=");
    scanf("%d",&radius);
    area = PI*radius*radius;
    printf("\nArea of circle:%2f",area);
    getch();
    return 0;
}
```

//Write a program to print 5 numbers using #define preprocessor directive array size.

```
#include<stdio.h>
#include<conio.h>
#define SIZE 5

int main()
{
    int num[SIZE],i;
    for(i=0;i<SIZE;i++)
    {
        printf("Enter any number:");
        scanf("\n%d", &num[i]);
    }
    printf("\nArray elements are:\n");
    for(i=0;i<SIZE;i++)
    {
        printf("%d\t", num[i]);
    }
    getch();
    return 0;
}
```

//Write a program to print area of square using #define preprocessor as functions.

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

```
#include<conio.h>
```

```
#define SQUARE(x) x*x
```

```
int main()
```

```
{
```

```
    int num;
```

```
    printf("Enter any Number:");
```

```
    scanf("%d", &num);
```

```
    printf("\n The Square is :%d",SQUARE(num));
```

```
    getch();
```

```
    return 0;
```

```
}
```

//Program of #if-else-#endif Preprocessor directive.

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

```
#include<conio.h>
```

```
#define MAX 50
```

```
int main()
```

```
{
```

```
    #if MAX>20
```

```
    printf("Yes, MAX is greater than 20.");
```

```
    #else
```

```
    printf("No,MAX is not greater than 20.");
```

```
    #endif
```

```
    getch();
```

```
    return 0;
```

```
}
```

// Write a Program to Check whether the given number is greater than 5 or not.

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int num;
```

```
    //Initialize and read in a value for num1
```

```
    printf("\nEnter an integer between 1 and 10:");
```

```
    scanf("%d",&num);
```

```
    if(num>5)
```

```
    {
```

```
        printf("You entered %d which is greater than 5\n", num);
```

```
    }else{
```

```
        printf("You entered %d which is not greater than 5\n", num);
```

```
    }
```

```
    getch();
```

```
    return 0;
```

```
}
```

// Write a Program to check whether the number is even or odd.

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

```
#include<conio.h>
```

//program to check whether the number is even or odd

```
int main()
```

```
{
```

```
    int num1;
```

```
    //Initialize and read in a value for num1
```

```
    printf("\n Enter any Number:");
```

```
    scanf("%d",&num1);
```

```
    if((num1%2)==0)//checking condition for even or odd
```

```
    {
```

```
        printf("\n %d Number is Even.",num1);
```

```
    }
```

```
    else
```

```
    {
```

```
        printf("\n%d Number is Odd.",num1);
```

```
    }
```

```
    getch();
```

```
    return 0;
```

```
}
```

// Write a Program to check whether the number is positive,negative or zero.

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

```
#include<conio.h>
```

//program to check wether the number is positive ,negative or zero.

```
int main()
```

```
{
```

```
    int num1;
```

```
    //initialize and read in a value for num1.
```

```
    printf("\nEnter any number:");
```

```
    scanf("%d",&num1);
```

```
    if(num1>0)
```

```
    {
```

```
        printf("\n%d Number is positive.",num1);
```

```
    }
```

```
    else if(num1<0)
```

```
    {
```

```
        printf("\n%d Number is negative.",num1);
```

```
    }else{
```

```
        printf("\n%d Number is zero.",num1);
```

```
    }
```

```
    getch();
```

```
    return 0;
```

```
}
```


// Write a Program to enter a number from the user and display the month name. if number>13 then display "invalid input" using switch case.

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int num1;
```

```
    //initialize and read in a value for num1.
```

```
    printf("\nEnter month number:");
```

```
    scanf("\n%d", &num1);
```

```
    switch(num1)
```

```
    {
```

```
        case 1:printf("January.");
```

```
        break;
```

```
        case 2:printf("February.");
```

```
        break;
```

```
        case 3:printf("March.");
```

```
        break;
```

```
        case 4:printf("April.");
```

```
        break;
```

```
        case 5:printf("May.");
```

```
        break;
```

```
        case 6:printf("June.");
```

```
        break;
```

```
        case 7:printf("July.");
```

```
        break;
```

```
        case 8:printf("August.");
```

```
        break;
```

```
        case 9:printf("September.");
```

```
        break;
```

```
case 10:printf("October.");  
break;  
case 11:printf("November.");  
break;  
case 12:printf("December.");  
break;  
default:printf("INVALID INPUT.");  
}  
getch();  
return 0;  
}
```

//Program to print 1 to 10 numbers using while loop.

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int num1;
```

```
    num1=1;
```

```
    while(num1<=10)
```

```
    {
```

```
        printf("\t%d", num1);
```

```
        num1++;
```

```
    }
```

```
    getch();
```

```
    return 0;
```

```
}
```

// Write a Program to use do-while loop.

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int num1;
```

```
    num1=1;
```

```
    do
```

```
    {
```

```
        printf("\t%d",num1);
```

```
        num1++;
```

```
    }while(num1<=10);
```

```
    getch();
```

```
    return 0;
```

```
}
```

//Write a Program to print 1 to 10 number using for loop.

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int num1;
```

```
    for (num1=1;num1<=10;num1++)
```

```
    {
```

```
        printf("\t%d",num1);
```

```
    }
```

```
    getch();
```

```
    return 0;
```

```
}
```

// Write a Program to find the factorial of a number using for loop.

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int num,fact,i;
```

```
    fact=1;
```

```
    printf("\nEnter any Number:");
```

```
    scanf("%d",&num); //calculating the factorial
```

```
    for(i=1;i<=num;i++)
```

```
    {
```

```
        fact=fact*i;
```

```
    }
```

```
    printf("Factorial of %d = %d",num,fact);
```

```
    getch();
```

```
    return 0;
```

```
}
```

// Write a Program to find the largest of three numbers using if-else.

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int num1,num2,num3;
```

```
    printf("\nEnter any three numbers:");
```

```
    scanf("%d %d %d",&num1,&num2,&num3);
```

```
    if(num1>num2&&num1>num3)
```

```
    {
```

```
        printf("\n%d Number is greater number.",num1);
```

```
    }
```

```
    else if(num2>num1&&num2>num3)
```

```
    {
```

```
        printf("\n%d Number is greater number.",num2);
```

```
    }else{
```

```
        printf("\n%d Number is greater number.",num3);
```

```
    }
```

```
    return 0;
```

```
}
```

//Write a program to find the sum of squares of digits of numbers

#include<stdio.h>

#include<conio.h>

int main()

{

int num,i,sum=0;

// initialize and read in a value for num.

printf("\nEnter Number:");

scanf("%d",&num);

//calculating the sum square of digit

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

{

sum=sum+(i*i);

}

printf("\nSum of square of digits = %d",sum);

return 0;

}

//Write a program to print the Fibonacci series (Pg. 55).

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int i,a,b,c,num;
    a=0;
    b=1;
    //initialize and read in a value for num
    printf("\nEnter number:");
    scanf("%d",&num);
    printf("\nFibonacci series up to %d term \n",num);
    // by default fibonaaci series starting values 0 and 1.
    printf("%d\t%d",a,b);
    // Remaining fibonacci series starting values calculating.
    for(i=3;i<=num;i++)
    {
        c=a+b;
        printf("\t%d",c);
        a=b;
        b=c;
    }
    return 0;
}
```

```

//Write a program that solves Quadratic equation

#include<stdio.h>

#include<conio.h>

#include<math.h>

int main()
{
    float a, b, c, x1, x2, determinant, realpart, imaginarypart;
    printf("Enter coefficients a, b and c:");
    scanf("%f %f %f",&a, &b, &c);
    determinant = b*b-4*a*c;
    if(determinant>0)
    {
        x1=(-b+sqrt(determinant))/(2*a);
        x2=(-b-sqrt(determinant))/(2*a);
        printf("Roots are real and different.");
        printf("\n x1 = %.3f",x1);
        printf("\n x2 = %.3f",x2);
    }
    else if(determinant == 0)
    {
        printf("Roots are real and same.");
        x1=(-b+sqrt(determinant))/(2*a);
        printf("\n x1 = %.3f",x1);
        printf("\n x2 = %.3f",x2);
    } else {
        realpart=-b/(2*a);
        imaginarypart=sqrt(-determinant)/(2*a);
        printf("\nRoots are complex and different.");
        printf("\n x1=%.3f+%.3fi",realpart,imaginarypart);
        printf("\n x2=%.3f+%.3fi",realpart,imaginarypart);
    }
}

```

```
}  
return 0;  
}
```

//Write a program to print the following patterns.

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

```
#include<conio.h>
```

```
/*print following pattern
```

```
1
```

```
12
```

```
123*/
```

```
int main()
```

```
{
```

```
    int i,j,n;
```

```
    printf("Enter the number of rows:");
```

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

```
    //for used as row wise.
```

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

```
    {
```

```
        // for used as column wise.
```

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

```
        {
```

```
            printf("%d",j);
```

```
        }
```

```
        printf("\n");
```

```
    }
```

```
    return 0;
```

```
}
```

```
#include<stdio.h>

#include<conio.h>

/* print the following pattern

12345
1234
123
12
1*/

int main()
{
    int i,j;
    for(i=5;i>=1;i--)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d",j);

        }
        printf("\n");
    }
    getch();
    return 0;

}
```

```
#include<stdio.h>

#include<conio.h>

/*print the following pattern

1
21
321
4321
54321*/

int main()
{
    int i,j;
    for(i=1;i<=5;i++)
    {
        for(j=i;j>=1;j--)
        {
            printf("%d",j);

        }
        printf("\n");
    }
    return 0;
}
```

```
/*  
*  
**  
***  
****  
*****  
*/
```

```
#include<stdio.h>  
#include<conio.h>  
int main()  
{  
    int i, j;  
    int n = 5; // Number of rows  
    for(i = 1; i <= n; i++)  
    {  
        for(j = 1; j <= i; j++)  
        {  
            printf("*");  
        }  
        printf("\n");  
    }  
    getch();  
    return 0;  
}
```

/* print the following pattern

**

*

*/

#include<stdio.h>

#include<conio.h>

int main()

{

int i, j;

int n = 5; // Number of rows

for(i = n; i >= 1; i--)

{

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

{

printf("*");

}

printf("\n");

}

return 0;

}


```

/*
 *
 ***
 *****
 *****

*/
#include<stdio.h>
#include<conio.h>
int main()
{
    int n = 4; // Number of rows
    for(int i = 1; i <= n; i++)
    {
        // Print spaces
        for(int j = i; j < n; j++)
        {
            printf(" ");
        }

        // Print stars
        for(int k = 1; k <= (2 * i - 1); k++)
        {
            printf("*");
        }

        printf("\n");
    }

    return 0;
}

```

```
/* print the following pattern
```

```
1
```

```
23
```

```
456
```

```
78910
```

```
1112131415 */
```

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int n = 5; // Number of rows
```

```
    int num = 1; // Starting number
```

```
    for(int i = 1; i <= n; i++)
```

```
    {
```

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

```
        {
```

```
            printf("%d ", num);
```

```
            num++;
```

```
        }
```

```
        printf("\n");
```

```
    }
```

```
    getch();
```

```
    return 0;
```

```
}
```

```
/* print the following pattern
```

```
$
```

```
$$
```

```
$$$
```

```
$$$$ */
```

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int n = 4; // Number of rows
```

```
    for(int i = 1; i <= n; i++)
```

```
    {
```

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

```
        {
```

```
            printf("$");
```

```
        }
```

```
        printf("\n");
```

```
    }
```

```
    getch();
```

```
    return 0;
```

```
}
```

//Write a Program for function call by value.

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

```
#include<conio.h>
```

```
//program for function call by value
```

```
void swap(int num1, int num2){
```

```
    int temp;
```

```
    temp = num1;
```

```
    num1 = num2;
```

```
    num2 = temp;
```

```
}
```

```
int main()
```

```
{
```

```
    int n1=27,n2=11;
```

```
    printf("\nBefore swap");
```

```
    printf("\nNumber 1:%d",n1);
```

```
    printf("\nNumber 2:%d",n2);
```

```
    swap(n1,n2);
```

```
    printf("\nAfter Swap");
```

```
    printf("\nNumber 1:%d",n1);
```

```
    printf("\nNumber 2:%d",n2);
```

```
    return 0;
```

```
}
```

//Write a Program for function for call by reference.

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

```
#include<conio.h>
```

```
void swap(int *num1,int *num2){
```

```
    int temp;
```

```
    temp = *num1;
```

```
    *num1 = *num2;
```

```
    *num2 = temp;
```

```
}
```

```
int main()
```

```
{
```

```
    clrscr();
```

```
    int n1=27,n2=11;
```

```
    printf("\n before swap");
```

```
    printf("\nNumber 1:%d",n1);
```

```
    printf("\nNumber 2:%d",n2);
```

```
    swap(&n1,&n2);
```

```
    printf("\n after swap");
```

```
    printf("\nNumber 1:%d",n1);
```

```
    printf("\nNumber 2:%d",n2);
```

```
    getch();
```

```
    return 0;
```

```
}
```

// Write a Program to find the largest value that is stored in the array.

```
#include<stdio.h>
#include<conio.h>
int main()
{
    int a[100],max,num,c,pos=1;
    clrscr();
    printf("Enter the number of elements in array\n");
    scanf("%d",&num);
    printf("Enter %d integers\n", num);
    for(c=0;c<num;c++)
    {
        scanf("%d",&a[c]);
    }
    max = a[0];
    for(c=1;c<num;c++)
    {
        if(a[c]>max)
        {
            max=a[c];
            pos=c+1;
        }
    }
    printf("Maximum elements is present at location %d and it's value is %d.\n", pos,max);
    getch();
    return 0;
}
```

// Write a program to compute the sum of all elements stored in an array.

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

```
#include<conio.h>
```

// to compute the sum of all elements stored in an array.

```
int main()
```

```
{
```

```
    int a[5];
```

```
    int i,sum=0;
```

```
    int *ptr;
```

```
    printf("\n Enter 5 Elements:");
```

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

```
        scanf("%d",&a[i]);
```

```
    ptr=a; //a=&a[0]
```

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

```
    {
```

```
        sum=sum+ *ptr;
```

```
        ptr++;
```

```
    }
```

```
    printf("The sum of array elements:%d",sum);
```

```
    return 0;
```

```
}
```

// Write a program to arrange the 'n' numbers stored in the array in ascending and descending order.

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int a[10],i=0,j=0,n,t;
```

```
    clrscr();
```

```
    printf("\n Enter the number of elements:");
```

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

```
    printf("\n");
```

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

```
        {
```

```
            scanf("%d",&a[i]);
```

```
        }
```

```
        for(j=0;j<(n-1);j++)
```

```
        {
```

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

```
            {
```

```
                if(a[i] > a[i+1])
```

```
                {
```

```
                    t= a[i];
```

```
                    a[i]= a[i+1];
```

```
                    a[i+1]=t;
```

```
                }
```

```
            }
```

```
        }
```

```
        printf("\n Ascending order:");
```

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

```
        {
```

```
            printf("%d",a[i]);
```



```
    }  
    printf("\n Descending order:");  
    for(i=n;i>0;i--)  
    {  
        printf("%d",a[i-1]);  
    }  
    return 0;  
}
```

// Write a Program that performs addition and subtraction of matrices.

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int i,j,c,r;
```

```
    clrscr();
```

```
    int a[10][10],b[10][10],madd[10][10],msub[20][20];
```

```
    printf("\nEnter the value for row and column:");
```

```
    scanf("%d %d",&c,&r);
```

```
    printf("\n Enter the value for matrix A.\n");
```

```
    for(i=0;i<c;i++)
```

```
    {
```

```
        for(j=0;j<r;j++)
```

```
        {
```

```
            scanf("\t%d",&a[i][j]);
```

```
        }
```

```
        printf("\n");
```

```
    }
```

```
    printf("\n Enter the value for matrix B.\n");
```

```
    for(i=0;i<c;i++)
```

```
    {
```

```
        for(j=0;j<r;j++)
```

```
        {
```

```
            scanf("\t%d",&b[i][j]);
```

```
        }
```

```
        printf("\n");
```

```
    }
```

```
    printf("\n Matrix A:\n");
```

```
    for(i=0;i<c;i++)
```

```
    {
```

```

        for(j=0;j<r;j++)
        {
            printf("\t%d",a[i][j]);

        }
    }
    printf("\n");
    printf("\n Matrix b:\n");
    for(i=0;i<c;i++)
    {
        for(j=0;j<r;j++)
        {
            printf("\t%d",b[i][j]);

        }
    }
    printf("\n");
    for(i=0;i<c;i++)
    {
        for(j=0;j<r;j++)
        {
            madd[i][j]=a[i][j]+b[i][j];
            msub[i][j]=a[i][j]-b[i][j];
        }
    }
    printf("\nThe addition matrix is:\n");
    for(i=0;i<c;i++)
    {
        printf("\t%d",madd[i][j]);
    }
    printf("\n");
    printf("\nThe subtraction matrix is:\n");
    for(i=0;i<c;i++)

```

```
{  
    printf("\t%d",msub[i][j]);  
}  
printf("\n");  
getch();  
return 0;  
}
```

//Write a program that performs the multiplication of matrices.

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int i,j,c,r,k;
```

```
    clrscr();
```

```
    int a[10][10],b[10][10],mmu[10][10];
```

```
    printf("\nEnter the value for row and column:");
```

```
    scanf("%d %d",&c,&r);
```

```
    printf("\n Enter the value for matrix A.\n");
```

```
    for(i=0;i<c;i++)
```

```
    {
```

```
        for(j=0;j<r;j++)
```

```
        {
```

```
            scanf("\t%d",&a[i][j]);
```

```
        }
```

```
        printf("\n");
```

```
    }
```

```
    printf("\n Enter the value for matrix B.\n");
```

```
    for(i=0;i<c;i++)
```

```
    {
```

```
        for(j=0;j<r;j++)
```

```
        {
```

```
            scanf("\t%d",&b[i][j]);
```

```
        }
```

```
        printf("\n");
```

```
    }
```

```
    printf("\n Matrix A:\n");
```

```
    for(i=0;i<c;i++)
```

```
    {
```

```

    for(j=0;j<r;j++)
    {
        printf("\t%d",a[i][j]);
    }
    printf("\n");
}
printf("\n Matrix b:\n");
for(i=0;i<c;i++)
{
    for(j=0;j<r;j++)
    {
        printf("\t%d",b[i][j]);
    }
    printf("\n");
}
for(i=0;i<c;i++)
{
    for(j=0;j<r;j++)
    {
        mmu[i][j]=0;
        for(k=0;k<c;k++)
        {
            mmu[i][j]+=a[i][k]*b[k][j];
        }
    }
}
printf("\nThe multiplication matrix is:\n");
for(i=0;i<c;i++)
{
    for(j=0;j<r;j++)
    {

```

```
        printf("\t%d",mmu[i][j]);  
    }  
    printf("\n");  
}  
getch();  
return 0;  
}
```

//Write a program to dereferencing of pointers.

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int T, *S;
```

```
    clrscr();
```

```
    T=10;
```

```
    S= &T;
```

```
    printf("\n%d", *S); //will give value of T.
```

```
    printf("\n%d", *&T); //will give value of T.
```

```
    printf("\n%u",&T); //will give address of T.
```

```
    printf("\n%u",S); //will give address of T.
```

```
    printf("\n%u",&T); //will give address of S.
```

```
    getch();
```

```
    return 0;
```

```
}
```


//Write a program for working of address operator.

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int T=25;
```

```
    clrscr();
```

```
    printf("\n Value of T is: %d", T);
```

```
    printf("\n Value of T is: %u",&T);
```

```
    getch();
```

```
    return 0;
```

```
}
```

//Write a program for understanding address operator.

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

```
#include<conio.h>
```

```
int main()
```

```
{
```

```
    int S = 5;
```

```
    clrscr();
```

```
    int *myptr;
```

```
    myptr = &S;
```

```
    printf("\n Address of S :%u",&S);
```

```
    printf("\n Value of myptr is :%u",myptr);
```

```
    getch();
```

```
    return 0;
```

```
}
```

//Write a program for function pointer.

```
#include<stdio.h>
#include<conio.h>
int myfunction(int a, int b)
{
    printf("\n a=%d\n",a);
    printf("\n b=%d\n",b);
    return 0;
}
int main(void)
{
    clrscr();
    int (*myfunctionp)(int,int);
    myfunctionp = myfunction;
    myfunction(2,3);
    myfunctionp(2,3);
    getch();
    return 0;
}
```