

Write a C++ Program which computes the sum of all the odd numbers between 0 to 100

solution

```
#include <iostream>
using namespace std;
int main ( )
{
    int sum=0;
    For (int i=0; i<=100; i++)
    {
        IF ( i%2 != 0 )
        {
            sum = sum + i;
        }
    }
    cout << "sum=" << sum;
```

Write a C++ Program which reads 20 numbers and computes their average

solution

#include <iostream>	sum = sum + num;
using namespace std;	}
int main ()	avg = sum / 20;
{ int sum=0, avg=0, num=0;	cout << "average=" << avg;
For (int i=1; i<=20; i++)	
{ cout << "enter number" << endl;	
cin >> num;	

Write a C++ Program which reads unknown number of integers and counts the number of odd and even numbers. Assume the input integers are all positive. Use a negative number as a sentinel.

solution

```
#include <iostream>
using namespace std;
int main()
{
    int num = 0, odd count = 0, even count = 0;
    cout << "enter positive number or negative num to stop"
    << endl;
    while (num >= 0)
    {
        cout << "enter number \n";
        cin >> num;
        if (num < 0)
            break;
        else if (num % 2 == 0)
            even count++;
        else
            odd count++;
    }
    cout << "number of even num << even count;
    cout << "number of odd num << odd count;
```


Subject _____

Day



Month



year



Write a C++ program to output

1

2 2

3 3 3

4 4 4 4

5 5 5 5 5

solution

```
#include <iostream>
```

```
using namespace std;
```

```
int main ( )
```

```
{
```

```
For (int i = 1; i <= 5; i++)
```

```
{
```

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

```
{
```

```
cout << i;
```

```
}
```

```
cout << endl;
```

```
}
```

```
#include <iostream>
```

```
using namespace std;
```

```
int main ( )
```

```
{ For (int i = 1; i <= 10; i++)
```

```
{ For (int j = 1; j <= i; j++)
```

```
{ cout << "x";
```

```
} cout << endl;
```

```
}
```

برنامج طباعة النجوم

Write a C++ Program which computes the Factorial From 1 to 10

solution

```
#include <iostream>
using namespace std;
int main ( )
{
    For (int i = 1; i <= 10; i++)
    {
        int Fact = 1;
        For (int j = 1; j <= i; j++)
        {
            Fact = Fact * j;
        }
        cout << "Fact of " << i << " = " << Fact ;
    }
}
```

```
#include <iostream>
using namespace std;
int main ( )
{
    int x, n, r = 1;
    cout << "enter number";
    cin >> x;
    cout << "enter Power";
    cin >> n;
    For (int i = 1; i <= n; i++)
    {

```

$$x^2 = x * x$$

$$x^3 = x * x * x$$

$$r = r * x;$$

}

cout << x << "raised to the
Power of " << n << " = " << r;

Subject _____

Day

Month

year

Write a C++ Program to calculate $S = \frac{1}{2} + \frac{2}{3} + \frac{3}{4} + \frac{4}{5} + \dots + \frac{99}{100}$
solution

```
#include <iostream>
using namespace std;
int main()
{
    double s = 0.0;
    For (int i = 1; i <= 99; i++)
        s = s + (i / (i + 1));
    cout << s;
}
```

Write a C++ Program to calculate $12^2 + 10^2 + 8^2 + 6^2 + 4^2 + 2^2$
solution

```
#include <iostream>
using namespace std;
int main()
{
    int s = 0;
    For (int i = 12; i >= 2; i -= 2)
    {
        s = s + (i * i);
    }
    cout << s;
}
```

Write a C++ program to calculate $1^2 * 2^2 * 3^2 * 4^2 * 5^2 * 6^2$

solution

```
#include <iostream>
```

```
using namespace std;
```

```
int main ()
```

```
{
```

```
    int R = 1;
```

```
    For (int i = 1; i <= 6; i++)
```

```
    {
```

```
        R = R * (i * i);
```

```
    }
```

```
    cout << R; }
```

Write a program to print a table with values y, y^2, y^3 (Where y takes values from 1 to 10)

solution

```
#include <iostream>
```

```
using namespace std;
```

```
int main ()
```

```
{
```

```
    cout << "y\t" << "y^2\t" << "y^3\n";
```

```
    For (int y = 1; y <= 10; y++)
```

```
    {
```

```
        cout << y << "\t" << y * y << "\t" << y * y * y << "\n";
```

```
    }
```

Subject _____

Day

☐

Month

☐

year

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$$P = \frac{(r+h)!}{(r-h)!}$$

solution

```
#include <iostream>
```

```
using namespace std;
```

```
int Fact (int);
```

```
int main()
```

```
{
```

```
    int r, h;
```

```
    float p;
```

```
    cout << "enter r";
```

```
    cin >> r;
```

```
    cout << "enter h";
```

```
    cin >> h;
```

```
    p = float (Fact (r+h)) / float (Fact (r-h));
```

```
    cout << "P=" << p;
```

```
}
```

```
int Fact (int n);
```

```
{
```

```
    int result = 1;
```

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

```
        result = result * i;
```

```
    return result;
```

```
}
```

Elisat

b) Recorder group of names alphabetically.

Solution

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    string names[5], swap;
```

```
    cout << "enter names";
```

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

```
        cin >> names[i];
```

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

```
    {
```

```
        for (int j=i+1; j<5; j++)
```

```
        {
```

```
            if (names[i] > names[j])
```

```
            {
```

```
                swap = names[i];
```

```
                names[i] = names[j];
```

```
                names[j] = swap
```

```
            }
```

```
        }
```

```
    }
```

```
    cout << "names after order";
```

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

```
        cout << names[i];
```

```
}
```


Subject _____

Day



Month



year



$y = \begin{cases} (3x+7) & \text{if } (x \leq 5) \\ \text{if } (x=2) \text{ or } (x=5) \\ \text{if } (x=-4) \text{ or } (x=4) \end{cases}$

Solution

```
#include <iostream>
using namespace std;
int main()
{
    int x, result;
    cout << "enter x";
    cin >> x;
    switch (x)
    {
        case -5:
            result = 3 * x + 7;
            break;
        case 2:
        case 5:
            result = 5 * x * x;
            break;
        case -4:
        case 4:
            result = x + 4 * x * x * x;
            break;
    }
    cout << "result = " << result;
}
```

Elsalam

Program to reverse a string in C++

solution

```
#include <iostream>
```

```
#include <string>
```

```
using namespace std;
```

```
int main ()
```

```
{
```

```
    string name;
```

```
    cout << "enter name";
```

```
    cin >> name;
```

```
    for (int i = name.length() - 1; i >= 0; i--)
```

```
        cout << name[i];
```

```
}
```

Program to calculate area and circ of a triangle

$$s = \frac{a+b+c}{2}$$

$$Area = \sqrt{s(s-a)(s-b)(s-c)}$$

solution

```
#include <iostream>
```

```
using namespace std;
```

```
int main ()
```

```
{
```

```
    double a, b, c, s, area, r;
```

```
    cin >> a >> b >> c;
```

```
    s = (a+b+c) / 2;
```

```
    r = s * (s-a) * (s-b) * (s-c);
```

```
    area = sqrt(r);
```

```
    cout << area;
```

```
}
```

Elisafant

Subject _____

Day



Month



year



Area = $W \times L$, Circ = $2 \times (W + L)$ area (circ) المساحة (ال محيط) of Rectangle

solution

```
#include <iostream>
```

```
using namespace std;
```

```
double area(int, int);
```

```
double circ(int, int);
```

```
void main ()
```

```
{
```

```
    double w, l;
```

```
    cout << "enter a (w) : ";
```

```
    cin >> w;
```

```
    cout << "enter a (L) : ";
```

```
    cin >> l;
```

```
    cout << "Area = " << area(w, l) << endl;
```

```
    cout << "Circumference = " << circ(w, l) << endl;
```

```
}
```

```
double area (int x, int y)
```

```
{
```

```
    double area;
```

```
    return area = (x * y);
```

```
}
```

```
double circ (int x, int y)
```

```
{
```

```
    return 2 * (x + y);
```

```
}
```

Subject _____

Day



Month



year



أصغر قيمة في array

solution

```
#include <iostream>
```

```
using namespace std;
```

```
int main ( )
```

```
{
```

```
int arr[5], L, small;
```

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

```
cin >> arr[i];
```

```
small = arr[0];
```

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

```
{
```

```
if (arr[i] < small)
```

```
{
```

```
small = arr[i];
```

```
L = i;
```

```
}
```

```
}
```

```
}
```


Subject _____

Day



Month



year



ب الدالة نجيب مضروب اي رقم n!

2elution

```
#include <iostream>
```

```
using namespace std;
```

```
void Fact (int n);
```

```
void main ()
```

```
{
```

```
    int n;
```

```
    cout<<"enter n";
```

```
    cin>>n;
```

```
    Fact (n);
```

```
}
```

```
void Fact (int n)
```

```
{
```

```
    int F=1;
```

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

```
        F=F*i;
```

```
    cout<<F;
```

```
}
```

Subject _____

Day



Month



year



$$P = \frac{n!}{(n+m)!}$$

20/10

solution

```
#include <iostream>
```

```
using namespace std;
```

```
int Fact (int n);
```

```
void main ()
```

```
{
```

```
    int n, m;
```

```
    float p;
```

```
    cout << "enter n and m";
```

```
    cin >> n >> m;
```

```
    p = Fact (n) / Fact (n+m);
```

```
    cout << p;
```

```
}
```

```
int Fact (int n);
```

```
{
```

```
    int F = 1;
```

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

```
        F = F * i;
```

```
    return F;
```

```
}
```


Subject _____

Day



Month



year



$$P = \frac{n! (n+m)!}{(m-n)!}$$

solution

```
#include <iostream>
using namespace std;
int Fact (int n);
void main ()
{
    int n, m;
    float p;
    cout << "entre n, m";
    cin >> n >> m;
    p = Fact (n) * Fact (n+m) / Fact (m-n);
    cout << p;
}

int Fact (int n)
{
    int F = 1;
    for (int i = 1; i <= n; i++)
        F = F * i;
    return F;
}
```

اعرف array مجموعا 4 واطبع متوسطها

Solution

```
#include <iostream>
using namespace std;
int main ()
{
    int num [4];
    cout << "enter 4 numbers";
    For (int i=0 ; i<4 ; i++)
        cin >> num[i];
    For (int i=0 ; i<4 ; i++)
        cout << num[i];
}
```

اعرف array مجموعا 4 واجيب مجموعها والمتوسط

Solution

```
#include <iostream>
using namespace std;
int main ()
{
    int num [4], sum=0, avg=0;
    For (int i=0 ; i<4 ; i++)
    {
        cin >> num[i];
        sum = sum + num[i];
    }
    avg = sum / 4;
    cout << "Sum =" << sum << "average =" << avg;
```


ترتيب القيم تصاعدي بـ array

solution

```
#include <iostream>
using namespace std;
int main()
{
    int arr[4], swap=0;
    For(int i=0; i<4; i++)
        cin >> arr[i];
    For(int i=0; i<4; i++)
    {
        For(int j=i+1; j<4; j++)
        {
            if (arr[i] > arr[j])
            {
                swap = arr[i];
                arr[i] = arr[j];
                arr[j] = swap;
            }
        }
    }
    For(int i=0; i<4; i++)
        cout << arr[i];
}
```

subject _____

Day



Month



year



مجموع + القيم السالبة array sum

1 1 6 = " " "

القيم السالبة

solution

```
#include <iostream>
```

```
using namespace std;
```

```
int main( )
```

```
{
```

```
int arr [3][3], num p = 0, num n = 0, sum p = 0, sum n = 0, num zero = 0;
```

```
cout << "enter element of array";
```

```
for (int i = 0; i < 3; i++)
```

```
{
```

```
for (int j = 0; j < 3; j++)
```

```
{
```

```
cin >> arr [i][j];
```

```
if (arr [i][j] > 0)
```

```
{ num p ++;
```

```
sum p = sum p + arr [i][j];
```

```
}
```

```
else if (arr [i][j] < 0)
```

```
{ num n ++;
```

```
sum n = sum n + arr [i][j];
```

```
}
```

```
else
```

```
num zero ++;
```

```
}
```

```
cout << "number of positive" << num p << "sum of positive" << sum p
```

```
<< "number of negative" << num n << "sum of negative" << sum n << num zero
```

ElSalami

Subject _____

Day



Month



year



Program to calculate sum 3rd row elements and the sum of 4th column in array [5][5]

solution

```
#include <iostream>
```

```
using namespace std;
```

```
int main ( )
```

```
{
```

```
int num[5][5], sum col = 0, sum row = 0;
```

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

```
{
```

```
for (int j = 0; j < 5; j++)
```

```
{
```

```
cin >> num[i][j];
```

```
}
```

```
}
```

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

```
sum row = sum row + num[2][i];
```

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

```
sum col = sum col + num[i][3];
```

```
cout << "sum of Forth column" << sum col;
```

```
cout << "sum of third row" << sum row;
```

```
}
```

third