Sheet1

Answer the following questions.

Question 1: write the following code
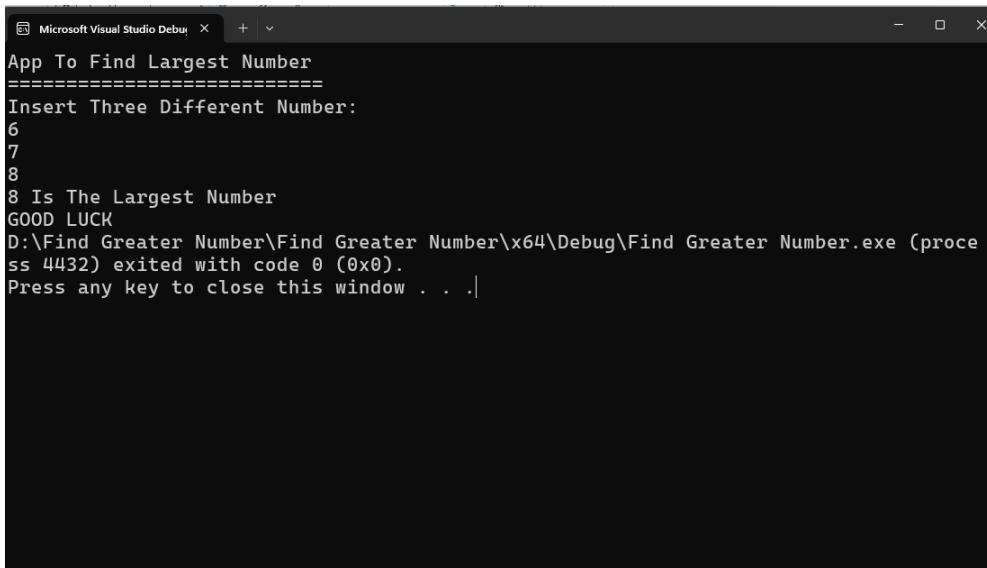
1. Write a program in C++ to find the first 10 natural numbers.

```cpp
#include <iostream>
using namespace std;
int main() {

    for (int i = 1; i <= 10; ++i) {
        cout << i << " ";
    }
        cout << endl;
    return 0;
}
```

```
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1 2 3 4 5 6 7 8 9 10

D:\sheet one\x64\Debug\sheet one.exe (process 31396) exited with code 0 (0x0)
.
Press any key to close this window . . .
```

2. Write a program using function to find the largest number among three different numbers entered by the user.

```cpp
using namespace std;
int main()
{
    cout << "App To Find Largest Number\n";
    cout << "===============================\n";
    cout << "Insert Three Different Number: \n";
    int num_one, num_two, num_three;
    cin >> num_one >> num_two >> num_three;
    if (num_one > num_two && num_one > num_three)
    {
        cout << num_one << " Is The Largest Number\n";
    }
    else if (num_two > num_one && num_two > num_three)
    {
        cout << num_two << " Is The Largest Number\n";
    }
    else
    {
        cout << num_three << " Is The Largest Number\n";
    }
    cout << "GOOD LUCK";
    return 0;
}
```

```
Microsoft Visual Studio Debug

App To Find Largest Number
===========================
Insert Three Different Number:
6
7
8
8 Is The Largest Number
GOOD LUCK
D:\Find Greater Number\Find Greater Number\x64\Debug\Find Greater Number.exe (proce
ss 4432) exited with code 0 (0x0).
Press any key to close this window . . .
```

3. **Write a program to make simple calculator using switch**

```cpp
#include <iostream>
using namespace std;
int main() {

    int num1, num2, operation;
    cout << "Type Number One\n";
    cin >> num1;
    cout << "Type Number Two\n";
    cin >> num2;
    cout << "Choose Operation Number\n";
    cout << "[1] +\n";
    cout << "[2] -\n";
    cout << "[3] /\n";
    cout << "[4] *\n";
    cin >> operation;
    switch (operation)
    {
        case 1:
            cout << num1 << " + " << num2 << " = " << num1 + num2 << "\n";
            break;
        case 2:
            cout << num1 << " - " << num2 << " = " << num1 - num2 << "\n";
            break;
        case 3:
            cout << num1 << " / " << num2 << " = " << num1 / num2 << "\n";
            break;
        case 4:
            cout << num1 << " * " << num2 << " = " << num1 * num2 << "\n";
            break;
        default:
            cout << "Operation Is Not Valid\n";
    }

    return 0;
}
```

```
Microsoft Visual Studio Debug    +  ∨                              —   □   ×
Type Number One
5
Type Number Two
6
Choose Operation Number
[1] +
[2] -
[3] /
[4] *
1
5 + 6 = 11

D:\sheet one\x64\Debug\sheet one.exe (process 40860) exited with code 0 (0x0).
Press any key to close this window . . .
```
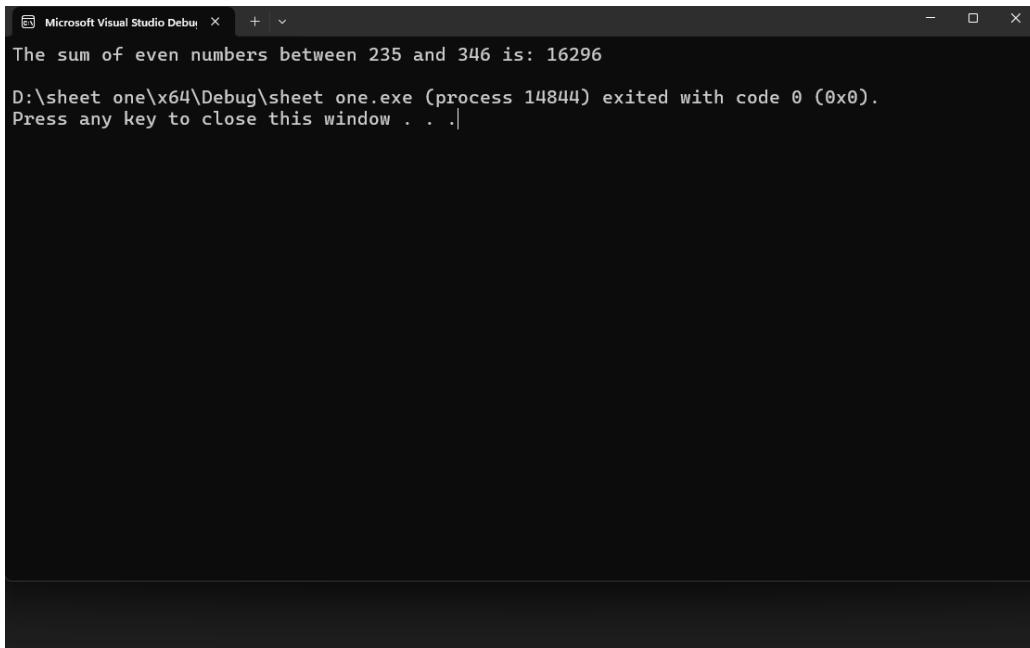
4. Write a C++ program for an algorithm to calculate the sum of even numbers between 235 and 346.

```cpp
#include <iostream>
using namespace std;
int main()
{
    int sum = 0;
    for (int i = 235; i <= 346; ++i) {
        if (i % 2 == 0) {
            sum += i;
        }
    }

    cout << "The sum of even numbers between 235 and 346 is: " << sum << endl;

    return 0;
}
```

```
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The sum of even numbers between 235 and 346 is: 16296

D:\sheet one\x64\Debug\sheet one.exe (process 14844) exited with code 0 (0x0).
Press any key to close this window . . .
```

5. An integer number is said to be a perfect number if its factors, including 1 (but not the number itself), sum to the number. For example, 6 is a perfect number because 6= 1+2+3. Write a program that determines if parameter number is a perfect number.
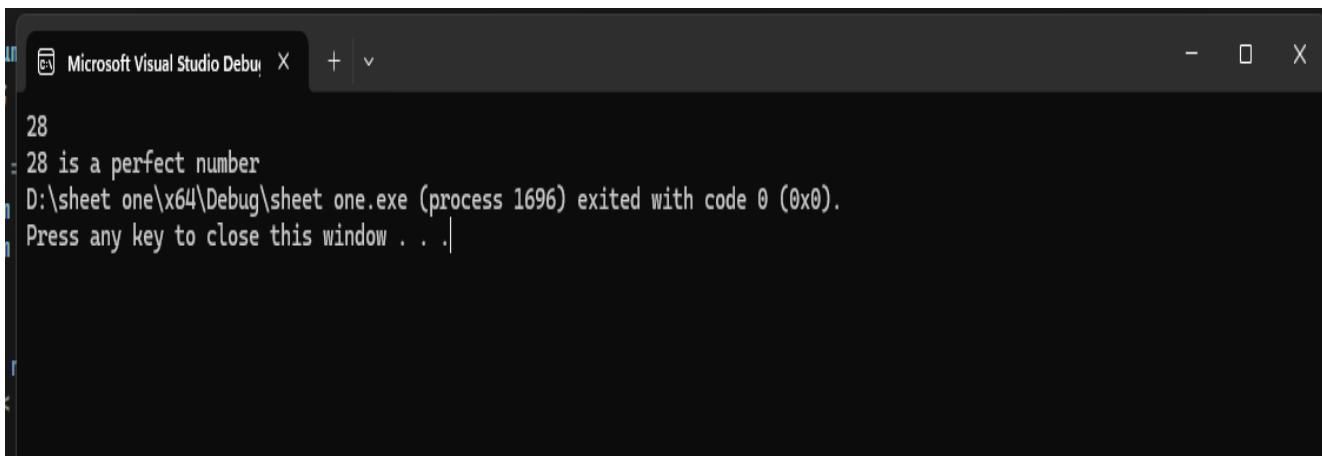
```cpp
#include <iostream>
using namespace std;

int main()
{
    int num, sum = 0;
    cin >> num;

    for (int i = 1; i < num; i++) {
        if (num % i == 0)
            sum = sum + i;
    }

    if (sum == num)
        cout << num << " is a perfect number";
    else
        cout << num << " is not a perfect number";


    return 0;
}
```

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```
28
28 is a perfect number
D:\sheet one\x64\Debug\sheet one.exe (process 1696) exited with code 0 (0x0).
Press any key to close this window . . .
```

6. Write a program in C++ to find the factorial of a number. 4! = 4*3*2*1

```cpp
#include <iostream>
using namespace std;

int main() {
    int number;
    unsigned long long factorial = 1;

    cout << "Enter a number: ";
    cin >> number;

    for (int i = 1; i <= number; i++) {
        factorial *= i; // Multiply factorial by i
    }
    cout << "Factorial of " << number << " = " << factorial << endl;


    return 0;
}
```

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```
Enter a number: 6
Factorial of 6 = 720

D:\c++ application\test\x64\Debug\test.exe (process 33352) exited with code 0 (0x0).
Press any key to close this window . . .
```

7. Write a program in C++ to check whether a number is prime or not.

```cpp
int main() {
    int number;
    bool isPrime = true;

    cout << "Enter a number: ";
    cin >> number;
    for (int i = 2; i * i <= number; i++) {
        if (number % i == 0) {
            isPrime = false;
            break;
        }
    }
    if (isPrime) {
        cout << number << " is a prime number." << endl;
    }
    else {
        cout << number << " is not a prime number." << endl;
    }

    return 0;
}
```

```
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Enter a number: 7
7 is a prime number.

D:\c++ application\test\x64\Debug\test.exe (process 35784) exited with code 0 (0x0).
Press any key to close this window . . .
```

8. **Write a program to displays the production table from 1 to 12 as following**

```
1*1=1 1*2=2 1*3=3 1*4=4 1*5=5 1*6=6 1*7=7 1*8=8 1*9=9 1*10=10 1*11=11 1*12=12
2*2=4 2*3=6 2*4=8 2*5=10 2*6=12 2*7=14 2*8=16 2*9=18 2*10=20 2*11=22 2*12=24
3*3=9 3*4=12 3*5=15 3*6=18 3*7=21 3*8=24 3*9=27 3*10=30 3*11=33 3*12=36
4*4=16 4*5=20 4*6=24 4*7=28 4*8=32 4*9=36 4*10=40 4*11=44 4*12=48
5*5=25 5*6=30 5*7=35 5*8=40 5*9=45 5*10=50 5*11=55 5*12=60
6*6=36 6*7=42 6*8=48 6*9=54 6*10=60 6*11=66 6*12=72
7*7=49 7*8=56 7*9=63 7*10=70 7*11=77 7*12=84
8*8=64 8*9=72 8*10=80 8*11=88 8*12=96
9*9=81 9*10=90 9*11=99 9*12=108
10*10=100 10*11=110 10*12=120
11*11=121 11*12=132
12*12=144
```

```cpp
#include <iostream>
using namespace std;

int main() {
    for (int i = 1; i <= 12; i++) {
        for (int j = 1; j <= 12; j++) {
            cout << i << " * " << j << " = " << i * j;
            if (j < 12) {
                cout << "\t";
            }
        }
        cout << endl;
    }

    return 0;
}
```

```
1 * 1 = 1         1 * 2 = 2         1 * 3 = 3         1 * 4 = 4         1 * 5 = 5         1 * 6 = 6         1 * 7 = 7         1 * 8 =
8         1 * 9 = 9         1 * 10 = 10      1 * 11 = 11      1 * 12 = 12
2 * 1 = 2         2 * 2 = 4         2 * 3 = 6         2 * 4 = 8         2 * 5 = 10        2 * 6 = 12        2 * 7 = 14        2 * 8 =
16        2 * 9 = 18        2 * 10 = 20      2 * 11 = 22      2 * 12 = 24
3 * 1 = 3         3 * 2 = 6         3 * 3 = 9         3 * 4 = 12        3 * 5 = 15        3 * 6 = 18        3 * 7 = 21        3 * 8 =
24        3 * 9 = 27        3 * 10 = 30      3 * 11 = 33      3 * 12 = 36
4 * 1 = 4         4 * 2 = 8         4 * 3 = 12        4 * 4 = 16        4 * 5 = 20        4 * 6 = 24        4 * 7 = 28        4 * 8 =
32        4 * 9 = 36        4 * 10 = 40      4 * 11 = 44      4 * 12 = 48
5 * 1 = 5         5 * 2 = 10        5 * 3 = 15        5 * 4 = 20        5 * 5 = 25        5 * 6 = 30        5 * 7 = 35        5 * 8 =
40        5 * 9 = 45        5 * 10 = 50      5 * 11 = 55      5 * 12 = 60
6 * 1 = 6         6 * 2 = 12        6 * 3 = 18        6 * 4 = 24        6 * 5 = 30        6 * 6 = 36        6 * 7 = 42        6 * 8 =
48        6 * 9 = 54        6 * 10 = 60      6 * 11 = 66      6 * 12 = 72
7 * 1 = 7         7 * 2 = 14        7 * 3 = 21        7 * 4 = 28        7 * 5 = 35        7 * 6 = 42        7 * 7 = 49        7 * 8 =
56        7 * 9 = 63        7 * 10 = 70      7 * 11 = 77      7 * 12 = 84
8 * 1 = 8         8 * 2 = 16        8 * 3 = 24        8 * 4 = 32        8 * 5 = 40        8 * 6 = 48        8 * 7 = 56        8 * 8 =
64        8 * 9 = 72        8 * 10 = 80      8 * 11 = 88      8 * 12 = 96
9 * 1 = 9         9 * 2 = 18        9 * 3 = 27        9 * 4 = 36        9 * 5 = 45        9 * 6 = 54        9 * 7 = 63        9 * 8 =
72        9 * 9 = 81        9 * 10 = 90      9 * 11 = 99      9 * 12 = 108
10 * 1 = 10       10 * 2 = 20       10 * 3 = 30       10 * 4 = 40       10 * 5 = 50       10 * 6 = 60       10 * 7 = 70       10 * 8 =
80        10 * 9 = 90       10 * 10 = 100    10 * 11 = 110    10 * 12 = 120
11 * 1 = 11       11 * 2 = 22       11 * 3 = 33       11 * 4 = 44       11 * 5 = 55       11 * 6 = 66       11 * 7 = 77       11 * 8 =
88        11 * 9 = 99       11 * 10 = 110    11 * 11 = 121    11 * 12 = 132
12 * 1 = 12       12 * 2 = 24       12 * 3 = 36       12 * 4 = 48       12 * 5 = 60       12 * 6 = 72       12 * 7 = 84       12 * 8 =
96        12 * 9 = 108      12 * 10 = 120    12 * 11 = 132    12 * 12 = 144

D:\sheet one\x64\Debug\sheet one.exe (process 34240) exited with code 0 (0x0).
Press any key to close this window . . .
```

Question 2: Rewrite the following do loop as a for loop.

What does it print out?

```
int X = - 10;

do { cout<<X << " & ";

   X+=10 ;

} while ( X<100);
```

-10 & 0 & 10 & 20 & 30 & 40 & 50 & 60 & 70 & 80 & 90 &

Question 3: Answer the following:

1. True or false:

The expression in the if statement:

if (score = 30) grade = 'A';

always evaluates to true.

2. Circle the best answer.

a. if (60 <= 12 * 5)

cout << "Hello";

cout << " There";

outputs the following:

(i) Hello There (ii) Hello (iii) Hello (iv) There
              There

b. if (7 <= 7) cout << 6 - 9 * 2 / 6 << endl;

outputs the following:

(i) -1 (ii) 3 (iii) 3.0 (iv) none of these

C. if (7 < 8){

cout << "2 4 6 8" << endl;

cout << "1 3 5 7" << endl; }

outputs the following:

(i) 2 4 6 8 (ii) 1 3 5 7 (iii) none of these

   1 3 5 7

d. if (5 < 3) cout << " *";

else if (7 == 8) cout << "&";

else

cout << "$";

outputs the following:

(i) * (ii) & (iii) $ (iv) none of these

///////////////////////////

3.Correct this code to print the correct message:

if (score >= 60)

cout << "You pass." << endl;

else;

cout << "You fail." << endl;

////////////////////////////////////

4.What is the output of the following C++ code?

x = 100;

y = 200;

if (x > 100 && y <= 200)

cout << x << " " << y << " " << x + y << endl;

else

cout << x << " " << y << " " << 2 * x - y << endl

1) False , if (score == 30)
2) A. (i) HelloThere
   B. (ii) 3
   C. (i) 2 4 6 8
          1 3 5 7
   D. (iii) $
3) if (score >= 60)
          cout << "You Pass." <<endl;

   else
          cout << "You fail." <<endl;

4) 100 200 0