IRC_JAVA_COD_CS_LOOPING

Test Summary

- No. of Sections: 1
- No. of Questions: 15
- Total Duration: 180 min

Section 1 - CODING

Section Summary

- No. of Questions: 15
- Duration: 180 min

Additional Instructions:

None

Q1. **Problem Statement :**

Lucas Sequence

a = 0, b=0, c=1 are the 1st three terms. All other terms in the Lucas sequence are generated by the sum of their 3 most recent predecessors. Write a program to generate the first n terms of a Lucas Sequence.

Input Format

The input contains an integer 'n' which denotes the given number

Output Format

Print the 'n' terms of the Lucas Sequence, separated by a single space. There are no leading or trailing spaces in the output.

Sample Input

```
5
```

Sample Output

```
0 0 1 1 2
```

Sample Input

```
4
```

Sample Output

```
0 0 1 1
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q2. **Problem Statement :**

Trendy Numbers

Write a program to check whether the given number is a trendy number or not. A number is said to be a trendy number if and only if it has 3 digits and the middle digit is divisible by 3.

Input Format

The input containing an integer 'n' which denotes the given number

Output Format

If the given number is a trendy number, then print "Trendy Number". Otherwise, print "Not a Trendy Number".

Sample Input

```
164
```

Sample Output

```
164 is trendy number
```

Sample Input

```
123
```

Sample Output

```
123 is not a trendy number
```

Sample Input

```
4
```

Sample Output

```
4 is not a trendy number
```

Sample Input

```
2345
```

Sample Output

```
2345 is not a trendy number
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q3. **Problem Statement:-**

Write a program to generate the first 'n' terms of the following series 1, 4, 9, 16, 25,...

Input Format

The input consists of an integer 'n' which denotes the number of terms to be printed in the series.

Output Format

The output consists of the series.
Refer to the sample output for formatting.

Sample Input

```
5
```

Sample Output

```
1 4 9 16 25
```

Sample Input

```
4
```

Sample Output

```
1 4 9 16
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q4. **Problem Statement:-**

Write a program to generate the first 'n' terms of the following series 6, 11, 21, 36, 56,...

Input Format

The input is an integer 'n' which denotes the number of terms to be printed in the series.

Output Format

The output consists of the series.
Refer to the sample output for formatting.

Sample Input

```
5
```

Sample Output

```
6 11 21 36 56
```

Sample Input

```
6
```

Sample Output

```
6 11 21 36 56 81
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q5. **Problem Statement :**

Kaprekar Number

Consider an n-digit number k. Square it and add the right n digits to the left n or n-1 digits. If the resultant sum is k, then k is called a Kaprekar number. For example, 9 is a Kaprekar number since 9^2 = 81 & 8+1=9. and 297 is a Kaprekar number since 297^2 = 88209 & 88+209 = 297

Input Format

Input consists of a single integer.

Output Format

Refer sample output for details.

Sample Input

```
9
```

Sample Output

```
Kaprekar Number
```

Sample Input

```
92
```

Sample Output

```
Not a Kaprekar Number
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q6. **Problem Statement:-**

Write a program to generate the first n terms in series 3, 9, 27, and 81,...

Input Format

The input consists of an integer 'n' which denotes the number of terms to be printed in the series.

Output Format

The output consists of the series.
Refer to the sample output for formatting.

Sample Input

```
3
```

Sample Output

```
3 9 27
```

Sample Input

```
5
```

Sample Output

```
3 9 27 81 243
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q7. **Problem Statement :**

Target Practice

Drona normally trains his disciples using a board that consists of concentric circles. When the student correctly hits the center of the concentric circles, his score is 100. The score gets reduced depending on where the students hit on the board. When the student hits outside the board, his score is 0. Drona will not allow a student to have his food unless he scores 100. Arjuna will always hit the target in his first attempt and he will leave early. Others may take more turns to reach a score of 100. Can you write a program to determine the number of turns a disciple takes to reach the target score of 'n'?

Input Format

Input consists of a list of positive integers. The first integer corresponds to the target score 'n'. Assume that all the other integers input are less than or equal to target score

Output Format

Output consists of a single line representing number of turns. Refer sample output for format details.

Sample Input

Sample Output

100 4 40 60	The number of turns is 3

Sample Input **Sample Output**

50 20 30 40	The number of turns is 2

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q8. **Problem Statement:-**

Write a program to generate the first 'n' terms of the following series 0.5, 1.5, 4.5, 13.5,...

Input Format

The input consists of an integer 'n' which denotes the number of terms to be printed in the series.

Output Format

The output consists of the series and refer to the sample output for formatting.

Sample Input **Sample Output**

5	0.5 1.5 4.5 13.5 40.5

Sample Input **Sample Output**

4	0.5 1.5 4.5 13.5

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q9. **Problem Statement :**

SPECIAL NUMBER
Write a program to find all special numbers between given range m and n(both inclusive). Assume that m and n are 2-digit numbers.

A 2-digit number is said to be a special number if the sum of its digits and the products of its digits is equal to the number itself.

For example, 19 is a special number.

The digits in 19 are 1 and 9. The sum of the digits is 10 and the product of the digits is 9.
10+9 = 19.

Input Format

The input consists of 2 integers m and n denotes the range

Output Format

Print the special numbers as shown in the sample output.

Sample Input **Sample Output**

11 30	19 29

Sample Input **Sample Output**

28 60	29 39 49 59

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q10. **Problem Statement:-**

Write a program to generate the first 'n' terms of the following series 121, 225, 361,...

Input Format

The input consists of an integer 'n' which denotes the number of terms to be printed in the series.

Output Format

The output consists of the series.
Refer to the sample output for formatting.

Sample Input

```
4
```

Sample Output

```
121 225 361 529
```

Sample Input

```
5
```

Sample Output

```
121 225 361 529 729
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q11. **Problem Statement :**

Print continuous number

Write a program to print all numbers between a and b (a and b inclusive) using a while loop.

Input Format

The input consists of 2 integers. The first integer corresponds to a and the second integer corresponds to b. Assume a>=b.

Output Format

Refer to sample Input and Output for formatting specifications.

Sample Input

```
4
10
```

Sample Output

```
4
5
6
7
```

Sample Input

```
6
10
```

Sample Output

```
6
7
8
9
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q12. **Problem Statement:-**

Write a program to generate the following series 0,2,8,14,...,34.

Input Format

The input consists of an integer 'n' which denotes the number of terms to be printed in the series.

Output Format

The output consists of the series and refer to the sample output for formatting.

Sample Input

```
5
```

Sample Output

```
0 2 8 14 24
```

Sample Input

```
6
```

Sample Output

```
0 2 8 14 24 34
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q13. **Problem Statement:-**

Write a program to generate the first 'n' terms of the following series 4, 5, 9, 18, 34,...

Input Format

The input consists of an integer 'n' which denotes the number of terms to be printed in the series.

Output Format

The output consists of the series and refer to the sample output for formatting.

Sample Input

```
5
```

Sample Output

```
4 5 9 18 34
```

Sample Input

```
6
```

Sample Output

```
4 5 9 18 34 59
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q14. **Problem Statement:-**

Write a program to generate the first 'n' terms of the following series 1, 2, 3, 6, 9, 18, 27,...

Input Format

The input consists of an integer 'n' which denotes the number of terms to be printed in the series.

Output Format

The output consists of the series.
Refer to the sample output for formatting.

Sample Input

```
6
```

Sample Output

```
1 2 3 6 9 18
```

Sample Input

```
5
```

Sample Output

```
1 2 3 6 9
```

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Q15. **Problem Statement :**

Handshakes

It was Stefan's first day at school. His teacher Elena Gilbert asked the students to meet every other student in the class and introduce themselves. The teacher asked them to handshake each other when they meet. If there are n number of students in the class then find the total number of handshakes made by the students.

Input Format

The input consists of 1 integer. The first input corresponds to the total number of students.

Output Format

The output consists of 1 integer.

Sample Input

Sample Output

15	105

Sample Input **Sample Output**

4	6

Time Limit: - ms Memory Limit: - kb Code Size: - kb

Answer Key & Solution

Section 1 - CODING

Q1

Test Case

Input

```
10
```

Output

```
0 0 1 1 2 4 7 13 24 44
```

Weightage - 20

Input

```
12
```

Output

```
0 0 1 1 2 4 7 13 24 44 81 149
```

Weightage - 20

Input

```
4
```

Output

```
0 0 1 1
```

Weightage - 20

Input

```
8
```

Output

```
0 0 1 1 2 4 7 13
```

Weightage - 20

Input

```
6
```

Output

```
0 0 1 1 2 4
```

Weightage - 20

Sample Input

```
5
```

Sample Output

```
0 0 1 1 2
```

Sample Input

```
4
```

Sample Output

```
0 0 1 1
```

Solution

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

     int  num;
     cin>>num;
    int thirdLast = 0;
    int secondLast = 0;
    int last = 1;
    int current = 0;
    cout<<thirdLast << " " << secondLast << " " << last << " ";
    for (int i = 3; i < num; i++)
    {
            current = last + secondLast + thirdLast;
            cout<<current << " ";
            int tmp = last;
            last = current;
            thirdLast = secondLast;
            secondLast = tmp;
     }
}
```

```
import java.util.Scanner;
class Main
{
   public static void main(String[] args)
   {
     int  num;
     Scanner s= new Scanner(System.in);
     num=s.nextInt();
     Main l= new  Main();
     l.lucas(num);
   }
   private void lucas(int num)
   {
    int thirdLast = 0;
    int secondLast = 0;
    int last = 1;
    int current = 0;
    System.out.print(thirdLast + " " + secondLast + " " + last + " ");
    for (int i = 3; i < num; i++)
    {
            current = last + secondLast + thirdLast;
            System.out.print(current + " ");
            int tmp = last;
            last = current;
            thirdLast = secondLast;
            secondLast = tmp;
    }
    }
}
```

Q2

Test Case

Input	Output
467	467 is trendy number

Weightage - 20

Input

```
23
```

Output

```
23 is not a trendy number
```

Weightage - 20

Input

```
2345
```

Output

```
2345 is not a trendy number
```

Weightage - 20

Input

```
768
```

Output

```
768 is trendy number
```

Weightage - 20

Input

```
333
```

Output

```
333 is trendy number
```

Weightage - 20

Sample Input

```
164
```

Sample Output

```
164 is trendy number
```

Sample Input

```
123
```

Sample Output

```
123 is not a trendy number
```

Sample Input

```
4
```

Sample Output

```
4 is not a trendy number
```

Sample Input

```
2345
```

Sample Output

```
2345 is not a trendy number
```

Solution

```
#include<iostream>
using namespace std;
int main()
{
  int n,a,b;
  cin>>n;
  if(n>=100 && n<=999)
  {
    a=n/10;
    b=a%10;
    if(b%3==0)
      cout<<"Trendy Number";
    else
      cout<<"Not a Trendy Number";
  }
  else
    cout<<"Invalid Number";
}
```

```
import java.util.Scanner;
class Main
{
   public static void main(String args[])
    {
         int a,b,count=0;
         Scanner s = new Scanner(System.in);
         a=s.nextInt();
         int c=a;
         System.out.print(a+" is ");
         while (a != 0)
         {
           a /= 10;
           ++count;
         }
         if(count!=3)
         {
             System.out.println("not a trendy number");
         }
         else
         {
           b = (c / 10) % 10 ;
           if(b%3==0)
          {
             System.out.println("trendy number");
          }
          else
         {
              System.out.println("not a trendy number");;
         }
         }

    }
}
```

Q3

Test Case

Input

```
10
```

Output

```
1 4 9 16 25 36 49 64 81 100
```

Weightage - 20

Input

```
15
```

Output

```
1 4 9 16 25 36 49 64 81 100 121 144 169 196 225
```

Weightage - 20

Input

```
20
```

Output

```
1 4 9 16 25 36 49 64 81 100 121 144 169 196 225
```

Weightage - 20

Input

```
8
```

Output

```
1 4 9 16 25 36 49 64
```

Weightage - 20

Input

```
7
```

Output

```
1 4 9 16 25 36 49
```

Weightage - 20

Sample Input

```
5
```

Sample Output

```
1 4 9 16 25
```

Sample Input

```
4
```

Sample Output

```
1 4 9 16
```

Solution

```c
#include<stdio.h>

int main()
{
    int a ;
    scanf("%d", &a) ;
    for(int i=1 ; i<=a ; i++)
        printf("%d ",i*i) ;
    return 0 ;
}
```

```cpp
#include<iostream>
using namespace std;
int main()
{
    int a ;
    cin>>a ;
    for(int i=1;i<=a;i++)
        cout<<i*i<<" " ;
    return 0 ;
}
```

```python
n = int(input())
for i in range(1,n+1):
    print(i*i,end=' ')
```

```java
import java.util.* ;

class Main
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in) ;
        int a = sc.nextInt() ;
        for(int i=1;i<=a;i++)
            System.out.print(i*i+" ") ;
    }
}
```

Q4

Test Case

Input

```
10
```

Output

```
6 11 21 36 56 81 111 146 186 231
```

Weightage - 20

Input

```
15
```

Output

```
6 11 21 36 56 81 111 146 186 231 281 336 396 461
```

Weightage - 20

Input

```
20
```

Output

```
6 11 21 36 56 81 111 146 186 231 281 336 396 461
```

Weightage - 20

Input

```
25
```

Output

```
6 11 21 36 56 81 111 146 186 231 281 336 396 461
```

Weightage - 20

Input

```
30
```

Output

```
6 11 21 36 56 81 111 146 186 231 281 336 396 461
```

Weightage - 20

Sample Input

```
5
```

Sample Output

```
6 11 21 36 56
```

Sample Input

```
6
```

Sample Output

```
6 11 21 36 56 81
```

Solution

```
#include<stdio.h>
int main()
{
    int n;
    scanf("%d", &n) ;
```

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

```
n = int(input())
j = 6
for i in range(1,n+1):
```

```
    int j=6;
    for(int i=1;i<=n;i++)
    {
        printf("%d ",j) ;
        j=j+(5*i) ;
    }
       return 0 ;
}
```

```
    cin>>n;
    int j=6;
    for(int i=1;i<=n;i++)
    {
        cout<<j<<" ";
        j=j+(5*i);
    }
       return 0;
}
```

```
print(j,end=' ')
j=j+(5*i)
```

```
import java.util.* ;

class Main
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in) ;
        int n = sc.nextInt() ;
        int j = 6 ;
        for(int i=1;i<=n;i++)
        {
            System.out.print(j+" ") ;
            j=j+(5*i) ;
        }
    }
}
```

Q5

Test Case

Input	Output
297	Kaprekar Number

Weightage - 20

Input	Output
10	Not a Kaprekar Number

Weightage - 20

Input	Output
2972	Not a Kaprekar Number

Weightage - 20

Input	Output
50	Not a Kaprekar Number

Weightage - 20

Input

```
81
```

Output

```
Not a Kaprekar Number
```

Weightage - 20

Sample Input

```
9
```

Sample Output

```
Kaprekar Number
```

Sample Input

```
92
```

Sample Output

```
Not a Kaprekar Number
```

Solution

```
#include<iostream>
using namespace std;
int main()
{
  int n,a,b;
  cin>>n;
  if(n>=1 && n<10)
  {
  a=(n*n)/10;
  b=(n*n)%10;
  }
  else if(n>=10 && n<100)
  {
  a=(n*n)/100;
  b=(n*n)%100;
  }
  else if(n>100 && n<1000)
  {
  a=(n*n)/1000;
  b=(n*n)%1000;
  }
  if(a+b==n)
    cout<<"Kaprekar Number";
    else
      cout<<"Not a Kaprekar Number";
}
```

```
import java.util.Scanner;
class Main
{
    public static void main(String args[])
    {
         int k,n=0,r,s,sum1=0,sum2=0,c,temp,l,sum,a=1;
         Scanner io=new Scanner(System.in);
         k=io.nextInt();
         temp = k;
         s = k*k;
        do
        {
            n++;
            temp /= 10;
         }while(temp>0);
        for(c = 0; c < n; c++)
        {
          r = s % 10;
          s = s/10;//8
          sum1 = sum1 + r*a;
          a*=10;
        }
        a=1;
        while(s>0)
        {
          r = s %10;
          s = s/10;
          sum2 = sum2 +r*a;
          a*=10;
        }
        sum  = sum1 + sum2;
        if(sum == k)
        {
             System.out.print("Kaprekar Number");
        }
        else
        {
```

```
                System.out.print("Not a Kaprekar Number");
            }
        }
    }
```

Q6

Test Case

Input

```
10
```

Output

```
3 9 27 81 243 729 2187 6561 19683 59049
```

Weightage - 20

Input

```
15
```

Output

```
3 9 27 81 243 729 2187 6561 19683 59049 177147 5
```

Weightage - 20

Input

```
6
```

Output

```
3 9 27 81 243 729
```

Weightage - 20

Input

```
8
```

Output

```
3 9 27 81 243 729 2187 6561
```

Weightage - 20

Input

```
12
```

Output

```
3 9 27 81 243 729 2187 6561 19683 59049 177147 5
```

Weightage - 20

Sample Input

```
3
```

Sample Output

```
3 9 27
```

Sample Input

```
5
```

Sample Output

```
3 9 27 81 243
```

Solution

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

int main()
{
    int n , i , x = 1 ;
    scanf("%d", &n) ;
    for ( i = 1 ; i <= n ; i++ )
    {
        x = x*3 ;
        printf("%d ", x );
    }
}
```

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

int main()
{
    int n , i , x = 1 ;
    cin >> n ;
    for ( i = 1 ; i <= n ; i++ )
    {
        x = x*3 ;
        cout << x << " " ;
    }
}
```

```python
n = int(input())
x = 1
for i in range(1,n+1):
    x = x*3
    print(x,end=' ')
```

```java
import java.util.* ;
class Main
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in) ;
        int n , i , x = 1 ;
        n = sc.nextInt() ;
        for ( i = 1 ; i <= n ; i++ )
        {
            x = x*3 ;
            System.out.print(x+" ") ;
        }
    }
}
```

Q7

Test Case

Input

```
80
4
30
50
```

Output

```
The number of turns is 3
```

Weightage - 20

Input

```
50
20
30
40
```

Output

```
The number of turns is 2
```

Weightage - 25

Input

```
100
4
40
60
```

Output

```
The number of turns is 3
```

Weightage - 55

Sample Input

```
100
4
40
60
```

Sample Output

```
The number of turns is 3
```

Sample Input

```
50
20
30
40
```

Sample Output

```
The number of turns is 2
```

Solution

```
#include<iostream>
using namespace std;
int main()
{
  int target , temp , count = 0 , score = 0 ;
  cin >> target >> temp ;

  while ( 1 )
  {
    score = score + temp ;
    count++ ;
    if( score >= target )
      break ;
    cin >> temp ;
  }
  cout << "The number of turns is " << count ;
  return 0 ;
}
```

```
import java.util.Scanner;
class Main
{
    public static void main(String args[])
    {
        int target, score, attempt=0, sum=0;
        Scanner  s = new Scanner(System.in);
        target=s.nextInt();
        while(sum<target)
        {
            score=s.nextInt();
            sum=sum+score;
            attempt++;
        }
        System.out.println("The number of turns is "+attempt);
    }
}
```

Q8

Test Case

Input

```
10
```

Output

```
0.5 1.5 4.5 13.5 40.5 121.5 364.5 1093.5 3280.5 9
```

Weightage - 20

Input

```
9
```

Output

```
0.5 1.5 4.5 13.5 40.5 121.5 364.5 1093.5 3280.5
```

Weightage - 20

Input

```
8
```

Output

```
0.5 1.5 4.5 13.5 40.5 121.5 364.5 1093.5
```

Weightage - 20

Input

```
7
```

Output

```
0.5 1.5 4.5 13.5 40.5 121.5 364.5
```

Weightage - 20

Input

```
6
```

Output

```
0.5 1.5 4.5 13.5 40.5 121.5
```

Weightage - 20

Sample Input

```
5
```

Sample Output

```
0.5 1.5 4.5 13.5 40.5
```

Sample Input

```
4
```

Sample Output

```
0.5 1.5 4.5 13.5
```

Solution

```
#include<stdio.h>
#include<math.h>
int main()
{
    int n ;
    scanf("%d", &n) ;
    double r = 0.5 ;
    for(int i=0 ; i<n ; i++)
    {
        if(i==0)
```

```
#include<bits/stdc++.h>
using namespace std ;

int main()
{
    int n ;
    cin >> n ;
    double r = 0.5 ;
    for(int i=0 ; i<n ; i++)
    {
```

```
n = int(input())
r = 0.5
for i in range(n):
    if(i==0):
        print(r,end=' ')
        continue
    else:
        t = 3**(i-1)
        x = t+r
```

```
        {
            printf("%.1lf", r) ;
            continue ;
        }
        else
        {
            double t = pow(3,i-1) ;
            double x=t+r ;
            r = x ;
            printf(" %.1lf", x) ;
        }
    }
}
```

```
        if(i==0)
        {
            cout << r ;
            continue ;
        }
        else
        {
            double t=pow(3,i-1) ;
            double x=t+r ;
            r=x ;
            cout << " " << x ;
        }
    }
}
```

```
r = x
print(x,end=' ')
```

```
import java.util.* ;
import java.lang.* ;

class Main
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in) ;
        int n = sc.nextInt() ;
        double r = 0.5 ;
        for(int i=0 ; i<n ; i++)
        {
            if(i==0)
            {
                System.out.print(r) ;
                continue ;
            }
            else
            {
                double t=Math.pow(3,i-1) ;
                double x=t+r ;
                r=x ;
                System.out.print(" "+x) ;
            }
        }
    }
}
```

Q9

Test Case

Input	Output
20 60	29 39 49 59

Weightage - 30

Input	Output
30 50	39 49

Weightage - 30

Input

```
20
60
```

Output

```
29
39
49
59
```

Weightage - 20

Input

```
20
60
```

Output

```
29
39
49
59
```

Weightage - 20

Sample Input

```
11
30
```

Sample Output

```
19
29
```

Sample Input

```
28
60
```

Sample Output

```
29
39
49
59
```

Solution

```
#include<iostream>
using namespace std;
int main()
{
  int m,n,a,b;
  cin>>m>>n;
  for(;m<=n;m++)
  {
    a=m/10;
    b=m%10;
    if(((a+b)+(a*b))==m)
    {
    cout<<m<<endl;
    }
  }
}
```

```
import java.util.Scanner;
class Main
{
    public static void main(String args[])
    {
        int n,m,sum=0,i,pro=1,sum1,j;
        Scanner io=new Scanner(System.in);
        m=io.nextInt();
        n=io.nextInt();
        for(i=m;i<=n;i++)
        {
            j=i;
            int first=i/10;
            int last=i%10;
            sum=first+last;
            pro=first*last;
            sum1=sum+pro;
            if(sum1==j)
            System.out.println(sum1);
        }
    }
}
```

Q10

Test Case

Input

```
10
```

Output

```
121 225 361 529 729 961 1225 1521 1849 2209
```

Weightage - 20

Input

```
15
```

Output

```
121 225 361 529 729 961 1225 1521 1849 2209 2601
```

Weightage - 20

Input

```
20
```

Output

```
121 225 361 529 729 961 1225 1521 1849 2209 2601
```

Weightage - 20

Input

```
25
```

Output

```
121 225 361 529 729 961 1225 1521 1849 2209 2601
```

Weightage - 20

Input

```
30
```

Output

```
121 225 361 529 729 961 1225 1521 1849 2209 2601
```

Weightage - 20

Sample Input

```
4
```

Sample Output

```
121 225 361 529
```

Sample Input

```
5
```

Sample Output

```
121 225 361 529 729
```

Solution

```c
#include<stdio.h>
int main()
{
  int n , i , num = 11 ;
  scanf("%d",&n) ;

  for ( i = 0 ; i < n ; i++ )
  {
    printf("%d ", num*num) ;
    num += 4 ;
```

```cpp
#include<iostream>
using namespace std;
int main()
{
  int n , i , num = 11 ;
  cin >> n ;

  for ( i = 0 ; i < n ; i++ )
  {
    cout << num*num << " " ;
```

```python
num = 11
n = int(input())
for i in range(n):
    print(num*num , end=' ')
    num += 4
```

```
  }
  return 0 ;
}
```

```
    num += 4 ;
  }

  return 0 ;
}
```

```
import java.util.* ;

class Main
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in) ;
        int n , i , num = 11 ;
        n = sc.nextInt() ;
        for ( i = 0 ; i < n ; i++ )
        {
            System.out.print(num*num +" ") ;
            num += 4 ;
        }
    }
}
```

Q11

Test Case

Input

```
5
12
```

Output

```
5
6
7
8
```

Weightage - 20

Input

```
4
8
```

Output

```
4
5
6
7
```

Weightage - 20

Input

```
1
5
```

Output

```
1
2
3
4
```

Weightage - 20

Input

```
5
10
```

Output

```
5
6
7
8
```

Weightage - 20

Input

Output

10 15	10 11 12 13

Weightage - 20

Sample Input **Sample Output**

4 10	4 5 6 7

Sample Input **Sample Output**

6 10	6 7 8 9

Solution

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

        int a,b,i;
        cin>>a>>b;
        for(i=a;i<=b;i++)
        {
           cout<<i<<endl;
        }
}
```

```
import java.util.Scanner;
class Main
{
    public static void main(String args[])
    {
        int a,b,i;
      Scanner io=new Scanner(System.in);
      a=io.nextInt();
      b=io.nextInt();
      for(i=a;i<=b;i++)
      {
        System.out.println(i);
      }
    }
}
```

Q12

Test Case

Input **Output**

8	0 2 8 14 24 34 48 62

Weightage - 20

Input **Output**

10	0 2 8 14 24 34 48 62 80 98

Weightage - 20

Input **Output**

15	0 2 8 14 24 34 48 62 80 98 120 142 168 194 224

Weightage - 20

Input

```
25
```

Output

```
0 2 8 14 24 34 48 62 80 98 120 142 168 194 224
```

Weightage - 20

Input

```
40
```

Output

```
0 2 8 14 24 34 48 62 80 98 120 142 168 194 224
```

Weightage - 20

Sample Input

```
5
```

Sample Output

```
0 2 8 14 24
```

Sample Input

```
6
```

Sample Output

```
0 2 8 14 24 34
```

Solution

```
#include<stdio.h>

int main()
{
  int n , i , val = 0 , diff = 2 , count = 0 ;
  scanf("%d", &n) ;

  for ( i = 0 ; i < n ; i++ )
  {
    if ( i == 0 )
    printf("%d ", val) ;
    else
    {
      val += diff ;
      printf("%d ", val) ;
    }
    count++ ;
    if ( count % 2 == 0 )
      diff += 4 ;
  }

  return 0 ;
}
```

```
#include<iostream>
using namespace std;
int main()
{
  int n , i , val = 0 , diff = 2 , count = 0 ;
  cin >> n ;

  for ( i = 0 ; i < n ; i++ )
  {
    if ( i == 0 )
    cout << val << " " ;
    else
    {
      val += diff ;
      cout << val << " " ;
    }
    count++ ;
    if ( count % 2 == 0 )
      diff += 4 ;
  }

  return 0 ;
}
```

```
n = int(input())
val = 0
diff = 2
```

```
import java.util.* ;

class Main
```

```
count = 0
for i in range(n):
    if (i==0):
        print(val,end=' ')
    else:
        val += diff
        print(val, end=' ')
    count += 1
    if (count % 2 == 0):
        diff += 4
```

```
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in) ;
        int n , i , val = 0 , diff = 2 , count = 0 ;
        n = sc.nextInt() ;

        for ( i = 0 ; i < n ; i++ )
        {
            if ( i == 0 )
            System.out.print(val+" ") ;
            else
            {
              val += diff ;
              System.out.print(val+" ") ;
            }
            count++ ;
            if ( count % 2 == 0 )
              diff += 4 ;
        }
    }
}
```

Q13

Test Case

Input

```
8
```

Output

```
4 5 9 18 34 59 95 144
```

Weightage - 20

Input

```
10
```

Output

```
4 5 9 18 34 59 95 144 208 289
```

Weightage - 20

Input

```
15
```

Output

```
4 5 9 18 34 59 95 144 208 289 389 510 654 823 10
```

Weightage - 20

Input

```
20
```

Output

```
4 5 9 18 34 59 95 144 208 289 389 510 654 823 10
```

Weightage - 20

Input

```
25
```

Output

```
4 5 9 18 34 59 95 144 208 289 389 510 654 823 10
```

Weightage - 20

Sample Input

```
5
```

Sample Output

```
4 5 9 18 34
```

Sample Input

```
6
```

Sample Output

```
4 5 9 18 34 59
```

Solution

```
#include<stdio.h>
int main()
{
  int n , i , val = 4 ;
  scanf("%d", &n) ;

  for (i = 1 ; i <= n ; i++ )
  {
    printf("%d ", val) ;
    val = val + i*i ;
  }

  return 0 ;
}
```

```
#include<iostream>
using namespace std;
int main()
{
  int n , i , val = 4 ;
  cin >> n ;

  for ( i = 1 ; i <= n ; i++ )
  {
    cout << val << " " ;
    val = val + i*i ;
  }

  return 0 ;
}
```

```
n = int(input())
val = 4
for i in range (1,n+1):
    print(val, end = ' ')
    val += i*i
```

```
import java.util.* ;

class Main
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in) ;
        int n , i , val = 4 ;
        n = sc.nextInt() ;

          for ( i = 1 ; i <= n ; i++ )
          {
            System.out.print(val+" ") ;
            val = val + i*i ;
          }
    }
}
```

Q14

Test Case

Input

```
10
```

Output

```
1 2 3 6 9 18 27 54 81 162
```

Weightage - 20

Input

```
15
```

Output

```
1 2 3 6 9 18 27 54 81 162 243 486 729 1458 2187
```

Weightage - 20

Input

```
20
```

Output

```
1 2 3 6 9 18 27 54 81 162 243 486 729 1458 2187
```

Weightage - 20

Input

```
30
```

Output

```
1 2 3 6 9 18 27 54 81 162 243 486 729 1458 2187
```

Weightage - 20

Input

```
25
```

Output

```
1 2 3 6 9 18 27 54 81 162 243 486 729 1458 2187
```

Weightage - 20

Sample Input

```
6
```

Sample Output

```
1 2 3 6 9 18
```

Sample Input

```
5
```

Sample Output

```
1 2 3 6 9
```

Solution

```c
#include<stdio.h>

int main()
{
  int n , i , first = 1 , second = 2 , val ;
  scanf("%d", &n) ;

  for ( i = 1 ; i <= n ; i++ )
  {
    if ( i == 1 )
        printf("%d ", i) ;
```

```cpp
#include<iostream>
using namespace std;
int main()
{
  int n , i , first = 1 , second = 2 , val ;
  cin >> n ;

  for ( i = 1 ; i <= n ; i++ )
  {
    if ( i == 1 )
    cout << i << " " ;
```

```c
else if ( i == 2 )
    printf("%d ", i) ;

else
{
  if ( i % 2 == 1 )
  {
    val = first + second ;
    first = second ;
    second = val ;
    printf("%d ", val) ;
  }
  else
  {
    val = 2 * second ;
    first = second ;
    second = val ;
    printf("%d ", val) ;
  }

}

  return 0 ;
}
```

```cpp
else if ( i == 2 )
  cout << i << " " ;

else
{
  if ( i % 2 == 1 )
  {
    val = first + second ;
    first = second ;
    second = val ;
    cout << val << " " ;
  }
  else
  {
    val = 2 * second ;
    first = second ;
    second = val ;
    cout << val << " " ;
  }

}
  }
  return 0 ;
}
```

```python
n = int(input())
first = 1
second = 2
for i in range (1,n+1):
    if (i == 1):
        print(i, end= ' ')

    elif (i == 2):
        print(i, end= ' ')

    else:
        if (i % 2 == 1):
            val = first + second
            first = second
            second = val
            print(val, end=' ')
        else:
            val = 2 * second
            first = second
            second = val
            print(val, end=' ')
```

```java
import java.util.* ;

class Main
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in) ;
        int n , i , first = 1 , second = 2 , val ;
        n = sc.nextInt() ;

        for ( i = 1 ; i <= n ; i++ )
        {
            if ( i == 1 )
            System.out.print(i+" ") ;

            else if ( i == 2 )
            System.out.print(i+" ") ;

            else
            {
              if ( i % 2 == 1 )
              {
                val = first + second ;
                first = second ;
                second = val ;
                System.out.print(val+" ") ;
              }
              else
              {
                val = 2 * second ;
                first = second ;
                second = val ;
                System.out.print(val+" ") ;
              }
            }
        }
```

```
    }
}
```

Q15

Test Case

Input

```
3
```

Output

```
3
```

Weightage - 20

Input

```
30
```

Output

```
435
```

Weightage - 20

Input

```
10
```

Output

```
45
```

Weightage - 20

Input

```
4
```

Output

```
6
```

Weightage - 20

Input

```
8
```

Output

```
28
```

Weightage - 20

Sample Input

```
15
```

Sample Output

```
105
```

Sample Input

```
4
```

Sample Output

```
6
```

Solution

```cpp
#include<iostream>
using namespace std;
int main()
{
  int n ;
  cin >> n ;
  cout << n*(n-1) / 2 ;
  return 0 ;
}
```

```java
import java.util.Scanner;
class Main
{
    public static void main(String args[])
    {
        int  n;
        Scanner s = new Scanner(System.in);
        n=s.nextInt();
        System.out.println(n*(n-1) / 2 );
    }
}
```