Class Test 01 Preparation

Practice Sheet 01: C Programming (Loops and Series)

For every problem, write a C program (WAP) that reads the input and prints the series exactly as in the sample output, with the terms separated by a comma and a space.

1. Print a Series of Multiples of 3

Write a program (WAP) that will print the following series up to N terms.

```
3, 6, 9, 12, 15, 18, 21, 24, ...
```

Sample Input	Sample Output
2	3, 6
5	3, 6, 9, 12, 15
7	3, 6, 9, 12, 15, 18, 21

2. Print a Series of Decreasing Odd Numbers

Write a program (WAP) that will print the following series up to N terms.

```
19, 17, 15, 13, 11, 9, 7, 5, 3, 1
```

Sample Input	Sample Output
3	19, 17, 15
5	19, 17, 15, 13, 11
7	19, 17, 15, 13, 11, 9, 7

3. Print a Fibonacci-Like Series

Write a program (WAP) that will print the following series up to N terms.

```
1, 2, 3, 5, 8, 13, 21, 34, ...
```

Sample Input	Sample Output
3	1, 2, 3
5	1, 2, 3, 5, 8
7	1, 2, 3, 5, 8, 13, 21

4. Print a Series of Powers of 2

Write a program (WAP) that will print the following series up to N terms.

```
2, 4, 8, 16, 32, 64, 128, ...
```

Sample Input	Sample Output
3	2, 4, 8
5	2, 4, 8, 16, 32
7	2, 4, 8, 16, 32, 64, 128

5. Print a Series of Factorials

Write a program (WAP) that will print the following series up to N terms.

```
1, 2, 6, 24, 120, 720, ...
```

Sample Input	Sample Output
2	1, 2
4	1, 2, 6, 24
6	1, 2, 6, 24, 120, 720

6. Print a Series of Increasing Differences

Write a program (WAP) that will print the following series up to N terms.

```
1, 3, 6, 10, 15, 21, 28, 36, ...
```

Sample Input	Sample Output
3	1, 3, 6
5	1, 3, 6, 10, 15
7	1, 3, 6, 10, 15, 21, 28

7. Print a Series of Repeated Numbers

Write a program (WAP) that will print the following series up to N terms.

```
1, 1, 2, 2, 3, 3, 4, 4, 5, 5, ...
```

Sample Input	Sample Output
4	1, 1, 2, 2
6	1, 1, 2, 2, 3, 3
10	1, 1, 2, 2, 3, 3, 4, 4, 5, 5

8. Print a Series of Powers of 3

Write a program (WAP) that will print the following series up to N terms.

```
1, 3, 9, 27, 81, 243, ...
```

Sample Input	Sample Output
3	1, 3, 9
5	1, 3, 9, 27, 81
6	1, 3, 9, 27, 81, 243

9. Print a Series in Reverse Order

Write a program (WAP) that will take an integer N as input and print the following series.

$$N^2, (N-1)^2, (N-2)^2, \ldots, 1^2$$

Sample Input	Sample Output
3	9, 4, 1

5	25, 16, 9, 4, 1
7	49, 36, 25, 16, 9, 4, 1

10. Print a Number Series Until a Condition Is Met

Write a program (WAP) that will take an integer X as input. It will print X and repeatedly divide X by 2 (integer division) until X becomes less than 1. The program should print every value generated.

Sample Input	Sample Output
16	16, 8, 4, 2, 1
20	20, 10, 5, 2, 1
7	7, 3, 1