

30 Apr 2023

```
← → NS 30 Apr 2023
```

```
J Main.java 2 ×
J Main.java > Main > main(String[])
1 // WAP to find the sum of series
2 // 1, 3, 6, 10, ... (Triangular Numbers)
3 import java.util.Scanner;
4
5 public class Main {
6     Run | Debug
7     public static void main(String[] args) {
8         Scanner sc = new Scanner(System.in);
9         System.out.print("Enter n: ");
10        int n = sc.nextInt();
11        int sum = 0;
12
13
14        System.out.println("Sum of the series is: "+sum);
15    }
16 }
```

Handwritten notes:

1, 3, 6, 10, ...  
(1+2), (1+2+3), (1+2+3+4)  
... n  
(1+2+3+...+n)  
i.e.  $\frac{n(n+1)}{2}$

```
Ln 13, Col 7 Spaces: 3 UTF-8 LF Java
```

```
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```

```
J Main.java 1 ×
J Main.java > Main
18 import java.util.*;
19 public class Main
20 {
21     Run | Debug
22     public static void main(String[] args) {
23         Scanner sc = new Scanner(System.in);
24         int n = sc.nextInt(); n=5
25         long sum = 0;
26         for (int i = 1; i <= n; i++) {
27             sum = i * (i + 1) / 2;
28             System.out.print(sum + " ");
29         }
30     }
}
```

Handwritten notes:

1, 3, 6, 10, 15  
✓ ✓ ✓ ✓ ✓  
 $\frac{i(i+1)}{2}$   
sum=0  
 $\frac{1 \times 2}{2} = 1$   
 $\frac{2 \times 3}{2} = 3$   
 $\frac{3 \times 4}{2} = 6$   
 $\frac{4 \times 5}{2} = 10$   
 $\frac{5 \times 6}{2} = 15$   
i = x x x x x 6

```
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL
```

```
5
1 3 6 10 15
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```

```
Ln 30, Col 2 Spaces: 3 UTF-8 LF Java
```

← →

NS 30 Apr 2023

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⚙️

J Main.java 1 ×

J Main.java > ...

```
4
5 public class Main {
6     Run | Debug
7     public static void main(String[] args) {
8         Scanner sc = new Scanner(System.in);
9         System.out.print("Enter n: ");
10        int n = sc.nextInt(); n=5
11        int sum = 0;
12        for(int i=1; i<=n; i++)
13        {
14            sum = sum+i;
15            System.out.print(sum+" ");
16        }
17    }
18
19    // import java.util.*;
20    // public class Main
21    // {
22    //     public static void main(String[] args) {
23    //         Scanner sc = new Scanner(System.in);
24    //         int n = sc.nextInt();
25    //         long sum = 0;
26    //         for (int i = 1; i <= n; i++) {
27    //             sum = i * (i + 1) / 2;
28    //             System.out.print(sum + " ");
29    //         }
30    //     }
31    // }
```

0 | 1: 1 3 6 10 15

$$i = 1 \times 2 \neq 6$$
$$\text{sum} = 0$$
$$0 + 1$$
$$= 1 + 2$$
$$= 3 + 3$$
$$= 6 + 4$$
$$= 10 + 5$$
$$= 15$$

Ln 18, Col 1 Spaces: 3 UTF-8 LF {} Java

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🔗

```
1  Main.java 1 x
2  J Main.java > Main > main(String[])
3  35  import java.util.Scanner;
4  36  public class Main {
5      Run | Debug
6  37  public static void main(String[] args) {
7  38      Scanner sc = new Scanner(System.in);
8  39      System.out.print("Enter n: ");
9  40      int n = sc.nextInt(); n=5
10 41      int sum = 0;
11 42      int total = 0; 5
12 43      for(int i=1; i<=n; i++) ←
13 44      {
14 45          sum = sum+i;
15 46          System.out.print(sum+" ");
16 47          total += sum;
17 48      }
18 49      System.out.println();
19 50      System.out.print(total);
20 51  }
```

Handwritten notes:

o/p: 1 3 6 10 15  
35

i = 1 2 3 4 5

Sum = 0  
= 0+1  
= 1+2  
= 3+3  
= 6+4  
= 10+5  
= 15

total = 0  
= 0+1  
= 1+3  
= 4+6  
= 10+10  
= 20+15  
= 35

Terminal output:

```
Enter n: 5
1 3 6 10 15
35
```

```
Enter n: 5
1 3 6 10 15
35%
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```

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J Main.java 1 ×

J Main.java > ...

54 // Sum of the series  $1 + x/1 + x^2/2 + x^3/3 + \dots + x^n/n$

55 import java.util.\*;

56 public class Main

57 {

Run | Debug

58 public static void main(String[] args) {

59 Scanner sc = new Scanner(System.in);

60 int n = sc.nextInt(); // 3

61 double x = sc.nextDouble(); // 2

62 double sum = 1;

63 for(int i=1; i<=n; i++){

64 sum += Math.pow(x,i)/i;

65 }

66 System.out.print(sum);

67 }

68 }

69

70

$1 + \frac{2}{1} + \frac{2^2}{2} + \frac{2^3}{3}$

$i = 1, 2, 3, 4$

$x=2 \quad n=3$

$Sum = 1 + \frac{2^1}{1} + \frac{2^2}{2} + \frac{2^3}{3}$

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL

3

2

7.666666666666666

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Ln 55, Col 1 Spaces: 3 UTF-8 LF {} Java

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J Main.java 1 ×

J Main.java > ...

70

71 // Sum of series  $(n/1) + (n/2) + (n/3) + (n/4) + \dots + (n/n)$

72 import java.util.Scanner;

73 public class Main {

Run | Debug

74 public static void main(String[] args) {

75 Scanner sc = new Scanner(System.in);

76 System.out.print("Enter n: ");

77 int n = sc.nextInt();

78 double sum = 0;

79 for(int i=1; i<=n; i++){

80 {

81 sum += n\*1.0/i;

82 }

83 System.out.print(sum);

84 }

85 }

86

$\frac{5}{1} + \frac{5}{2} + \frac{5}{3} + \frac{5}{4} + \frac{5}{5} = ?$

$n=5$

$i = 1, 2, 3, 4, 5, 6$

$Sum = 0 + \frac{5.0}{1} + \frac{5.0}{2} + \frac{5.0}{3} + \frac{5.0}{4} + \frac{5.0}{5}$

$= 29.2896$

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL

Enter n: 10

29.289682539682538

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Ln 86, Col 1 Spaces: 3 UTF-8 LF {} Java

## H/w: Sum of Series

①  $\frac{2}{3} - \frac{4}{5} + \frac{6}{7} - \frac{8}{9} + \dots$  upto 'n' terms

② 0.6, 0.06, 0.006, 0.0006 to 'n' terms

③ 2, 12, 36, 80, 150 ....

