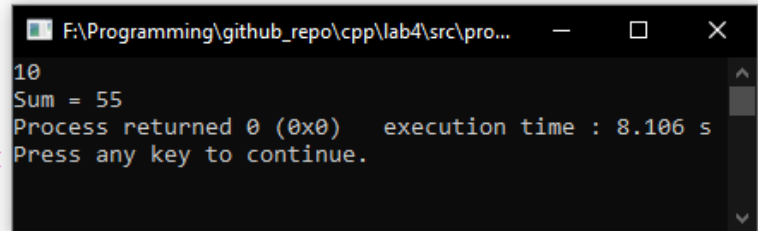


2. Write a c program to print the sum of the following series:

a. $1 + 2 + 3 + \dots + N$

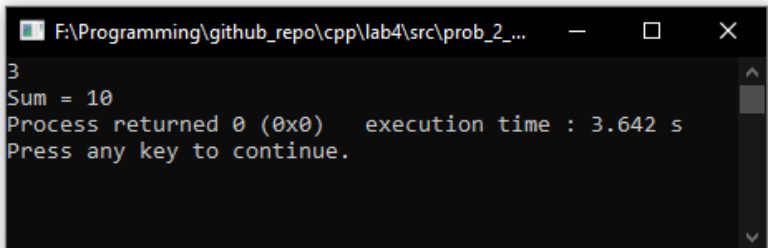
```
1  #include<stdio.h>
2
3  int main()
4  {
5      int i, n, sum=0;
6
7      scanf("%d", &n);
8
9      for(i=1; i<=n; i++){
10         sum = sum + i;
11     }
12
13     printf("Sum = %d", sum);
14
15     return 0;
16 }
17
```



```
F:\Programming\github_repo\cpp\lab4\src\pro...
10
Sum = 55
Process returned 0 (0x0)   execution time : 8.106 s
Press any key to continue.
```

b. $1^2 + 3^2 + 5^2 + \dots + N^2$

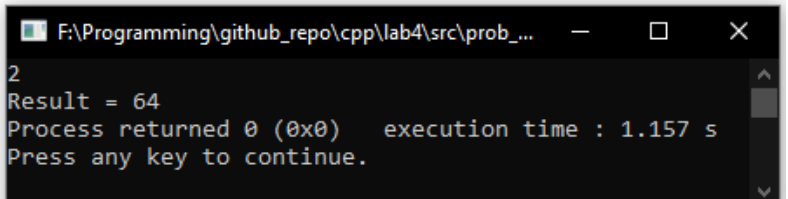
```
1  #include <stdio.h>
2
3  int main()
4  {
5      int i, n, sum = 0;
6
7      scanf("%d", &n);
8
9      for(i=1; i<=n; i+=2){
10         sum = sum + i*i;
11     }
12
13     printf("Sum = %d", sum);
14
15     return 0;
16 }
```



```
F:\Programming\github_repo\cpp\lab4\src\prob_2...
3
Sum = 10
Process returned 0 (0x0)   execution time : 3.642 s
Press any key to continue.
```

c. $2^2 + 4^2 + 6^2 + \dots + N^2$

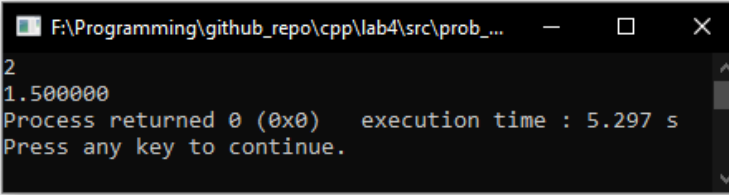
```
1  // 2^2 * 4^2 * 6^2 ....
2  #include<stdio.h>
3
4  int main()
5  {
6      int i, j=2, n, result=1;
7
8      scanf("%d", &n);
9
10     for(i=1; i<=n; i++){
11         result *= j*j;
12         j+=2;
13     }
14
15     printf("Result = %d", result);
16
17     return 0;
18 }
```



```
F:\Programming\github_repo\cpp\lab4\src\prob...
2
Result = 64
Process returned 0 (0x0)   execution time : 1.157 s
Press any key to continue.
```

d. $1 + \frac{1}{2} + \frac{1}{3} + \dots + \frac{1}{N}$

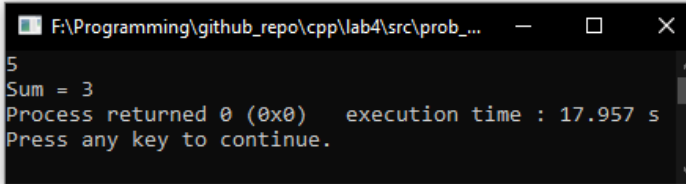
```
1  #include<stdio.h>
2
3  int main()
4  {
5      int i, n;
6      float sum = 0;
7
8      scanf("%d", &n);
9
10     for(i=1; i<=n; i++){
11         sum = sum + 1.0/i;
12     }
13
14     printf("%f", sum);
15
16     return 0;
17 }
18
```



```
2
1.500000
Process returned 0 (0x0)   execution time : 5.297 s
Press any key to continue.
```

e. $1 - 2 + 3 - 4 + 5 - 6 + \dots + N$

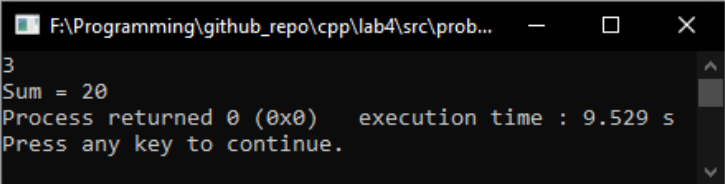
```
1  // 1 - 2 + 3 - 4 + 5 - ....
2  #include<stdio.h>
3
4  int main()
5  {
6      int i, n, sum = 0;
7
8      scanf("%d", &n);
9
10     for(i=1; i<=n; i++){
11         if(i%2 == 0)
12             sum -= i;
13         else
14             sum += i;
15     }
16
17     printf("Sum = %d", sum);
18
19     return 0;
20 }
```



```
5
Sum = 3
Process returned 0 (0x0)   execution time : 17.957 s
Press any key to continue.
```

f. $1 * 2 + 2 * 3 + 3 * 4 + \dots + n1 * n2$

```
1  #include<stdio.h>
2
3  int main()
4  {
5      int i, n, sum=0;
6
7      scanf("%d", &n);
8
9      for(i=1; i<=n; i++){
10         sum += i * (i+1);
11     }
12
13     printf("Sum = %d", sum);
14
15     return 0;
16 }
```



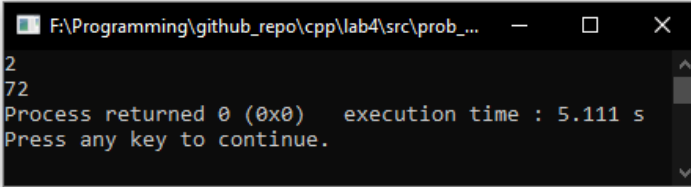
```
3
Sum = 20
Process returned 0 (0x0)   execution time : 9.529 s
Press any key to continue.
```

g. $1 * 3 * 4 + 2 * 5 * 6 + 3 * 7 * 8 + \dots + n1 * n2 * n3$

```

1  #include<stdio.h>
2
3  int main()
4  {
5      int i, n, j=3, sum=0;
6
7      scanf("%d", &n);
8
9      for(i=1; i<=n; i++){
10         sum += i * j * (j+1);
11         j+=2;
12     }
13
14     printf("%d", sum);
15
16     return 0;
17 }

```



```

2
72
Process returned 0 (0x0)   execution time : 5.111 s
Press any key to continue.

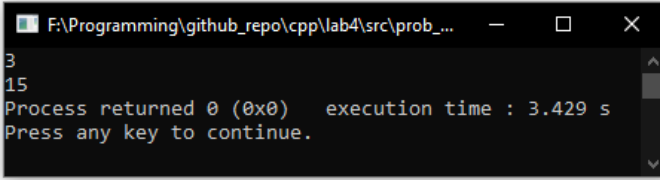
```

h. $1 + 5 + 9 + \dots + \text{Nth number}$

```

1  #include<stdio.h>
2
3  int main()
4  {
5      int i, n, num=1, sum = 0;
6
7      scanf("%d", &n);
8
9      for(i=0; i<n; i++, num+=4){
10         sum += num;
11     }
12
13     printf("%d", sum);
14
15     return 0;
16 }

```



```

3
15
Process returned 0 (0x0)   execution time : 3.429 s
Press any key to continue.

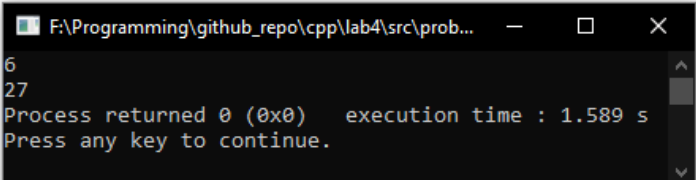
```

i. $1 + 2 + 4 + 5 + 7 + 8 + \dots + N$

```

1  // 1+2+4+5+7+8...
2
3  #include<stdio.h>
4
5  int main()
6  {
7      int i, num=1, n, sum = 0;
8
9      scanf("%d", &n);
10
11     for(i=1; i<=n; i++){
12         if(num%3 == 0){
13             num++;
14         }
15         sum += num;
16         num++;
17     }
18
19     printf("%d", sum);
20     return 0;
21 }

```



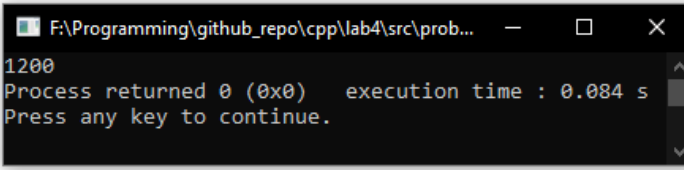
```

6
27
Process returned 0 (0x0)   execution time : 1.589 s
Press any key to continue.

```

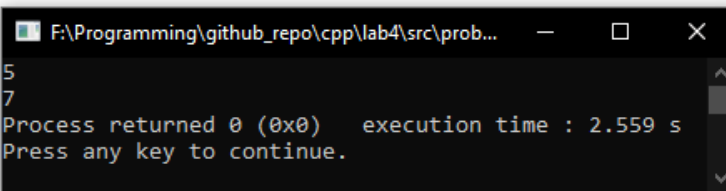
j. $60 + 57 + 5 + \dots \geq 1$

```
1 #include<stdio.h>
2
3 int main()
4 {
5     int i, sum = 0;
6     int num = 60;
7
8     for(i=num; i>0; i-=3){
9         sum += num;
10    }
11
12    printf("%d", sum);
13
14    return 0;
15 }
```



3. Write a c program to calculate the sum of the Fibonacci series upto N-th term.
 $0 + 1 + 1 + 2 + 3 + 5 + 8 + \dots + \text{Nth term}$

```
1 #include<stdio.h>
2
3 int main()
4 {
5     int i, n, f=0, s=1, temp, sum=f;
6
7     scanf("%d", &n);
8
9     for(i=1; i<n; i++){
10        sum += s;
11        temp = f + s;
12        f = s;
13        s = temp;
14    }
15
16    printf("%d", sum);
17
18    return 0;
19 }
```



4. Write a c program to calculate the factorial of a number.

```
1 #include<stdio.h>
2
3 int main()
4 {
5     int i, n, result = 1;
6
7     scanf("%d", &n);
8
9     if(n < 0){
10        printf("Invalid Input");
11    }else{
12        for(i=n; i>=1; i--){
13            result *= i;
14        }
15
16        printf("%d! = %d", n, result);
17    }
18
19    return 0;
20 }
```

