Find nth term of an Arithmetic Progression in Java

Given first term (a), common difference (d) and a integer n of the Arithmetic Progression series, the task is to find n^{th} termof the series.

Examples :

Input : a = 2, d = 1, n = 5
Output : The 5th term of the series is : 6
Explanation: The 5th term is calculated using T_n = a + (n − 1) * d, yielding T_5 = 6.

Input : a = 5, d = 2, n = 10
Output : The 10th term of the series is : 23
Explanation: The 10th term is calculated using T_n = a + (n − 1) * d, yielding T_{10} = 23.

Approach:

We know the Arithmetic Progression series is like = 2, 5, 8, 11, 14 …. …
In this series 2 is the stating term of the series .
Common difference = 5 − 2 = 3.
so we can write the series as :
$t_1 = a$
$t_2 = a + (2 - 1) * d$
$t_3 = a + (3 - 1) * d$
.
.
.
$t_n = a + (n - 1) * d$

To find the nth term in the Arithmetic Progression series we use the simple formula.

$T_n = a + (n - 1) * d$

```java
// Java program to find nth term
// of Arithmetic progression
import java.io.*;
import java.lang.*;

class GfG {
    public static void main(String[] args) {
        // starting number
        int a = 2;

        // Common difference
        int d = 1;

        // N th term to be find
        int n = 5;

        int term = a + (n - 1) * d;
        // Display the output
        System.out.print(n + "th term of the series is : "
                         + term);
    }
}
```

Output

5th term of the series is : 6

Time Complexity: O(1), the code will run in a constant time.

Auxiliary Space: O(1), no extra space is required, so it is a constant.