

Solution – Crazy Fencing

(CCC Senior #1, 2021)

```
import java.util.Scanner;
public class Main
{
    public static void main (String args[])
    {
        Scanner scan = new Scanner (System.in);
        int n = scan.nextInt ();

        // holds the lengths of the fences
        int[] h = new int [n + 1];
        // holds the base of the fences
        int[] w = new int [n];
        // to hold the final answer (the total area)
        double s = 0;

        // scans the lengths array (inserts input into the array)
        for (int i = 0 ; i < n + 1 ; i++)
        {
            h [i] = scan.nextInt ();
        }
        // scans the base array (inserts input into the array)
        for (int i = 0 ; i < n ; i++)
        {
            w [i] = scan.nextInt ();
        }
        scan.close ();

        // checks to see if it's modable by 2, if so it will then proceed to divide the
        // answer by two and add it to the previous value of the already stored area
        for (int i = 0 ; i < n ; i++)
        {
            if ((h [i] + h [i + 1]) * w [i]) % 2 == 0)
            {
                // proceeds so it just does the trapezoid formula (a+b)*h / 2 and
                // then the loop repeats until all values are scanned
                s = s + ((h [i] + h [i + 1]) * w [i]) / 2;
            }
            else
            {
                // here if the value is not modable by 2, then it does divide the value by 2
                // but then adds a 0.5, since dividing by a number always floors the value
                // so a value of 1.5 would be considered 1
                s = s + ((h [i] + h [i + 1]) * w [i]) / 2 + 0.5;
            }
        }
        // prints out the final answer (the total area)
        System.out.println (s);
    }
}
```