# Approach taken to solve the Problem:

1. We inductively calculate and add the area to a variable as we read the input.
2. To calculate the area formed between two consecutive points, we calculate it in two steps with the help of proportionality.

Formula used: if have different sign

Else if and have the same sign then:

# Constraints:

1. It is assumed that the input points are all distinct.
2. It is assumed that the input points are in range of word.
3. It is assumed that the input points are all integers and sorted according to coordinate.
4. In a point both the coordinates can be positive or negative independently.
5. It is also assumed that the answer of a test case will not exceed the size of double data type.
6. Area formed under the is taken as positive.
7. Area formed by a single point is taken as
8. Input Format – Each line takes a single integer. First line takes .

Next lines take the coordinates. .

1. Output Format – The answer to the problem, a double is printed.

# Testing Strategy:

1. We have considered all the corner cases possible and matched our programs output with expected manual calculation.
2. Some random points were tested, and then cross checked by doing expected manual calculations.
3. The corner cases considered were:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Input Points** | **Program** **Output** | **Expected Output** |
| 1 |  | 0 | 0 |
| 2 |  | 0 | 0 |
| 3 |  | 1 | 1 |
| 4 |  | 9 | 9 |
| 5 |  | 10 | 10 |
| 2 |  | 3 | 3 |
| 2 |  | 13 | 13 |

1. Some random test cases considered: (which were later cross examined manually)

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Input Points** | **Program Output** | **Expected Output** |
| 1 |  | 0 | 0 |
| 5 |  | 35 | 35 |
| 3 |  | 2899.470588 | 2899.48 |
| 4 |  | 26679.536713 | 26679.50 |
| 2 |  | 0 | 0 |
| 3 |  | 40265412975.424019 | 40265412975.42 |
| 1 |  | 0 | 0 |