Shapes in 2D

Submission deadline:	**2021-10-31 23:59:59**
Late submission with malus:	**2022-01-02 23:59:59** (Late submission malus: 100.0000 %)
Evaluation:	**5.5000**
Max. assessment:	**5.0000** (Without bonus points)
Submissions:	20 / 20 Free retries + 10 Penalized retries (-10 % penalty each retry)
Advices:	4 / 2 Advices for free + 2 Advices with a penalty (-10 % penalty each advice)

The task is to develop a program that compares the areas and perimeters of two given shapes.

There are given two planar shapes in the input. A shape may be any of:

- triangle - the input consists of letter T followed by three decimal numbers (sides),
- rectangle - the input consists of letter R followed by two decimal numbers (sides), or
- square - the input consists of letter S followed by one decimal number (side).

The program computes the area and the perimeter of both input shapes and compares them. The result of the comparison is then printed to the standard output, the format is clear from the example runs below.

The program must validate input data. If the input is invalid, the program must detect it, it shall output an error message (see below), and terminate. If displayed, the error message must be sent to the standard output (do not send it to the error output) and the error message must be terminated by a newline (\n). The input is considered invalid, if:

- the input shape is invalid (only Triangle/Rectangle/Square is valid),
- there was not enough decimal numbers to describe the dimensions of the input shape,
- a dimension is invalid, is not well-formatted, is negative, or zero,
- the three decimal numbers do not form a valid triangle (triangle inequality),
- both sides of a rectangle are the same (i.e., the shape is indeed a square).

Sample program runs:

```
Shape #1
S 4.5
Shape #2
R 2 10.125
Perimeter: square #1 < rectangle #2
Area: square #1 = rectangle #2
```

```
Shape #1
R 4 5
Shape #2
T 4.5 6 7.5
Perimeter: rectangle #1 = triangle #2
Area: rectangle #1 > triangle #2
```

```
Shape #1

   T
 1
 1
 1
Shape #2
 S
 2
Perimeter: triangle #1 < square #2
Area: triangle #1 < square #2
```

```
Shape #1
T 7.981 8.899 2.996
Shape #2
R 2.959 6.979
Perimeter: triangle #1 = rectangle #2
Area: triangle #1 < rectangle #2
```

```
Shape #1
R 6.474 0.559
Shape #2
T 0.507 14.276 14.285
```

```
Perimeter: rectangle #1 < triangle #2
Area: rectangle #1 = triangle #2
```

```
Shape #1
T 20 30 50
Invalid input.
```

```
Shape #1
S -4
Invalid input.
```

```
Shape #1
R 20 30
Shape #2
T 0.444 0.521 0.965
Invalid input.
```

```
Shape #1
R 12 12
Invalid input.
```

```
Shape #1
R 1 abcd
Invalid input.
```

Advice:

- The sample runs above list both the output of your program (boldface font) and user input (regular font). The bold/regular formatting is included here, in the problem statement page, to increase readability of the listing. Your program must output the text without any additional markup.
- Do not forget the newline (\n) after the last output line.
- Use `double` data type to represent the values. Do not use `float`, the precision of `float` is not always sufficient.
- The program can be developed without additional functions (i.e., in one big `main`). However, if divided into functions, the program is readable and easier to debug.
- All numeric values in the input fit into the range of `double` data type. The reference uses `double` and `int` data types to represent numbers.
- Please strictly adhere to the format of the output. The output must exactly match the output of the reference program. The comparison is completed by a machine, meaning an exact match is required. If your program provides output different from the reference, the program is considered malfunctioning. Be very careful since the comparison is sensitive even to whitespace characters (spaces, newlines, tabulators). Please note that all output lines are followed by a newline character (\n). The new line character must be present after the last line of the output and after the error messages. Download the enclosed archive. The archive contains a set of testing inputs and the expected outputs. Read Progtest FAQ to learn how to use input/output redirection and how to simplify testing of your programs.
- Use Heron's formula to compute the area of triangle.

- Your program will be tested in a restricted environment. The testing environment limits running time and available memory. The exact time and memory limits are shown in the reference solution testing log. However, neither time nor memory limit could cause a problem in this simple program. Next, the testing environment prohibits the use of functions which are considered "dangerous" (functions to execute other processes, functions to access the network, ...). If your program uses such functions, the testing environment refuses to execute the program. Your program may use something like the code below:

```
int main ( int argc, char * argv [] )
{

   ...

   system ( "pause" ); /* prevent program window from closing */
   return 0;
}
```

This will not work properly in the testing environment - it is prohibited to execute other programs. (Even if the function were allowed, this would not work properly. The program would infinitely wait for a key to be pressed, however, no one will press any key in the automated testing environment. Thus, the program would be terminated on exceeded time limit.) If you want to keep the pause for your debugging and you want the program to be accepted by the Progtest, use the following trick:

```
int main ( int argc, char * argv [] )
{

   ...

#ifndef __PROGTEST__
   system ( "pause" ); /* this is ignored by Progtest */
#endif /* __PROGTEST__ */
   return 0;
```

```
        }
```

☐ **Reference**

20	2021-12-27 21:09:38	**Download**

Submission status:	Evaluated
Evaluation:	0.0000

- **Evaluator: computer**
    - Program compiled
    - Test 'Basic test with example input data': success
        - result: 100.00 %, required: 100.00 %
        - Max. run time: 0.007 s (limit: 1.000 s)
        - Total run time: 0.052 s
        - Mandatory test success, evaluation: 100.00 %
    - Test 'Borderline test': failed
        - result: 0.00 %, required: 50.00 %
        - Max. run time: 0.006 s (limit: 1.000 s)
        - Total run time: 0.151 s
        - Optional test failed, evaluation: 50.00 %
        - ☑ Failed (invalid output)
            - ☑ Input data **[28 B / 28 B]**

            ```
            T 553 885 900
            T 553 885 900
            ```

            - ☑ Output data **[63 B / 63 B]**

            ```
            Shape #1
            Shape #2
            Perimeter: = triangle #2
            Area: = triangle #2
            ```

            - ☑ Reference **[87 B / 87 B]**

            ```
            Shape #1
            Shape #2
            Perimeter: triangle #1 = triangle #2
            Area: triangle #1 = triangle #2
            ```

        - ☑ Failed (invalid output)
            - ☑ Input data **[28 B / 28 B]**

            ```
            T 553 885 900
            T 553 900 885
            ```

            - ☑ Output data **[63 B / 63 B]**

            ```
            Shape #1
            Shape #2
            Perimeter: = triangle #2
            Area: = triangle #2
            ```

            - ☑ Reference **[87 B / 87 B]**

            ```
            Shape #1
            Shape #2
            Perimeter: triangle #1 = triangle #2
            Area: triangle #1 = triangle #2
            ```

        - Failed (invalid output)
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- Failed (invalid output)
  - Test 'Invalid input test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.236 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Random test': failed
    - result: 0.00 %, required: 50.00 %
    - Max. run time: 0.005 s (limit: 1.000 s)
    - Total run time: 0.081 s
    - Optional test failed, evaluation: 50.00 %
    - Failed (invalid output)
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    - Failed (invalid output)
  - Overall ratio: 25.00 % (= 1.00 * 0.50 * 1.00 * 0.50)
- Advices used: 2
- Penalty due to advices: None (2 <= 2 limit)
- Total percent: 25.00 %
- Late submission malus: 5.00
- Total points: 0.25 * (5.00 - 5.00) = 0.00

SW metrics:		Total	Average	Maximum	Function name
	Functions:	1	--	--	--
	Lines of code:	135	135.00 ± 0.00	135	main
	Cyclomatic complexity:	27	27.00 ± 0.00	27	main

19	2021-10-22 23:12:08	Download

Submission status:	Evaluated
Evaluation:	5.5000

- **Evaluator: computer**
  - Program compiled
  - Test 'Basic test with example input data': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.007 s (limit: 1.000 s)
    - Total run time: 0.051 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.150 s

- Optional test success, evaluation: 100.00 %
    - Test 'Invalid input test': success
        - result: 100.00 %, required: 50.00 %
        - Max. run time: 0.005 s (limit: 1.000 s)
        - Total run time: 0.230 s
        - Optional test success, evaluation: 100.00 %
    - Test 'Random test': success
        - result: 100.00 %, required: 50.00 %
        - Max. run time: 0.006 s (limit: 1.000 s)
        - Total run time: 0.092 s
        - Optional test success, evaluation: 100.00 %
    - Overall ratio: 100.00 % (= 1.00 * 1.00 * 1.00 * 1.00)
- Advices used: 2
- Penalty due to advices: None (2 <= 2 limit)
- Total percent: 100.00 %
- Early submission bonus: 0.50
- Total points: 1.00 * (5.00 + 0.50) = 5.50

SW metrics:		Total	Average	Maximum	Function name
	Functions:	1	--	--	--
	Lines of code:	173	173.00 ± 0.00	173	main
	Cyclomatic complexity:	39	39.00 ± 0.00	39	main

18	2021-10-22 20:47:10	Download
Submission status:	Evaluated	
Evaluation:	0.0000	

- **Evaluator: computer**
    - Program compiled
    - Test 'Basic test with example input data': failed
        - result: 90.00 %, required: 100.00 %
        - Max. run time: 0.007 s (limit: 1.000 s)
        - Total run time: 0.055 s
        - Mandatory test failed, evaluation: 0.00 %
        - Failed (invalid output)
    - Overall ratio: 0.00 %
- Advices used: 2
- Penalty due to advices: None (2 <= 2 limit)
- Total percent: 0.00 %
- Early submission bonus: 0.50
- Total points: 0.00 * (5.00 + 0.50) = 0.00

SW metrics:		Total	Average	Maximum	Function name
	Functions:	1	--	--	--
	Lines of code:	169	169.00 ± 0.00	169	main
	Cyclomatic complexity:	39	39.00 ± 0.00	39	main

17	2021-10-22 20:41:12	Download
Submission status:	Evaluated	
Evaluation:	0.0000	

- **Evaluator: computer**
    - Program compiled
    - Test 'Basic test with example input data': failed
        - result: 90.00 %, required: 100.00 %
        - Max. run time: 0.006 s (limit: 1.000 s)
        - Total run time: 0.052 s
        - Mandatory test failed, evaluation: 0.00 %
        - Failed (invalid output)
    - Overall ratio: 0.00 %
- Advices used: 2
- Penalty due to advices: None (2 <= 2 limit)
- Total percent: 0.00 %
- Early submission bonus: 0.50
- Total points: 0.00 * (5.00 + 0.50) = 0.00

SW metrics:		Total	Average	Maximum	Function name
	Functions:	1	--	--	--
	Lines of code:	169	169.00 ± 0.00	169	main
	Cyclomatic complexity:	39	39.00 ± 0.00	39	main

16 **2021-10-22 20:27:00** <u>Download</u>

Submission status:	Evaluated
Evaluation:	4.4121

- **Evaluator: computer**
  - Program compiled
  - Test 'Basic test with example input data': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.049 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success
    - result: 84.85 %, required: 50.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.149 s
    - Optional test success, evaluation: 84.85 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Test 'Invalid input test': success
    - result: 94.55 %, required: 50.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.236 s
    - Optional test success, evaluation: 94.55 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Test 'Random test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.005 s (limit: 1.000 s)
    - Total run time: 0.084 s
    - Optional test success, evaluation: 100.00 %
  - Overall ratio: 80.23 % (= 1.00 * 0.85 * 0.95 * 1.00)
- Advices used: 2
- Penalty due to advices: None (2 <= 2 limit)
- Total percent: 80.23 %
- Early submission bonus: 0.50
- Total points: 0.80 * (5.00 + 0.50) = 4.41

		Total	Average	Maximum	Function name
SW metrics:	Functions:	**1**	--	--	--
	Lines of code:	**169**	**169.00 ± 0.00**	**169**	main
	Cyclomatic complexity:	**50**	**50.00 ± 0.00**	**50**	main

15 **2021-10-22 20:24:27** <u>Download</u>

Submission status:	Evaluated
Evaluation:	4.5697

- **Evaluator: computer**
  - Program compiled
  - Test 'Basic test with example input data': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.007 s (limit: 1.000 s)
    - Total run time: 0.057 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success
    - result: 87.88 %, required: 50.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.165 s
    - Optional test success, evaluation: 87.88 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Test 'Invalid input test': success
    - result: 94.55 %, required: 50.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.255 s
    - Optional test success, evaluation: 94.55 %
    - Failed (invalid output)
    - Failed (invalid output)

- Failed (invalid output)
    - Test 'Random test': success
        - result: 100.00 %, required: 50.00 %
        - Max. run time: 0.005 s (limit: 1.000 s)
        - Total run time: 0.088 s
        - Optional test success, evaluation: 100.00 %
    - Overall ratio: 83.09 % (= 1.00 * 0.88 * 0.95 * 1.00)
- Advices used: 2
- Penalty due to advices: None (2 <= 2 limit)
- Total percent: 83.09 %
- Early submission bonus: 0.50
- Total points: 0.83 * (5.00 + 0.50) = 4.57

SW metrics:		Total	Average	Maximum	Function name
	Functions:	1	--	--	--
	Lines of code:	169	169.00 ± 0.00	169	main
	Cyclomatic complexity:	50	50.00 ± 0.00	50	main

14	2021-10-22 20:21:19	Download

Submission status: Evaluated
Evaluation: 4.2545

- **Evaluator: computer**
    - Program compiled
    - Test 'Basic test with example input data': success
        - result: 100.00 %, required: 100.00 %
        - Max. run time: 0.006 s (limit: 1.000 s)
        - Total run time: 0.061 s
        - Mandatory test success, evaluation: 100.00 %
    - Test 'Borderline test': success
        - result: 81.82 %, required: 50.00 %
        - Max. run time: 0.007 s (limit: 1.000 s)
        - Total run time: 0.207 s
        - Optional test success, evaluation: 81.82 %
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
    - Test 'Invalid input test': success
        - result: 94.55 %, required: 50.00 %
        - Max. run time: 0.007 s (limit: 1.000 s)
        - Total run time: 0.345 s
        - Optional test success, evaluation: 94.55 %
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
    - Test 'Random test': success
        - result: 100.00 %, required: 50.00 %
        - Max. run time: 0.007 s (limit: 1.000 s)
        - Total run time: 0.128 s
        - Optional test success, evaluation: 100.00 %
    - Overall ratio: 77.36 % (= 1.00 * 0.82 * 0.95 * 1.00)
- Advices used: 2
- Penalty due to advices: None (2 <= 2 limit)
- Total percent: 77.36 %
- Early submission bonus: 0.50
- Total points: 0.77 * (5.00 + 0.50) = 4.25

SW metrics:		Total	Average	Maximum	Function name
	Functions:	1	--	--	--
	Lines of code:	169	169.00 ± 0.00	169	main
	Cyclomatic complexity:	50	50.00 ± 0.00	50	main

13	2021-10-22 20:01:16	Download

Submission status: Evaluated
Evaluation: 0.0000

- **Evaluator: computer**
    - Program compiled
    - Test 'Basic test with example input data': failed

- result: 90.00 %, required: 100.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.052 s
    - Mandatory test failed, evaluation: 0.00 %
    - Failed (invalid output)
  - Overall ratio: 0.00 %
- Total percent: 0.00 %
- Early submission bonus: 0.50
- Total points: 0.00 * (5.00 + 0.50) = 0.00

SW metrics:		Total	Average	Maximum	Function name
	Functions:	1	--	--	--
	Lines of code:	169	169.00 ± 0.00	169	main
	Cyclomatic complexity:	49	49.00 ± 0.00	49	main

12	2021-10-22 19:59:34	Download

Submission status:	Evaluated
Evaluation:	0.0000

- **Evaluator: computer**
  - Compile in 'pedantic' mode failed (10 % penalty).
  - Test 'Basic test with example input data': failed
    - result: 50.00 %, required: 100.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.054 s
    - Mandatory test failed, evaluation: 0.00 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Overall ratio: 0.00 %
- Total percent: 0.00 %
- Early submission bonus: 0.50
- Total points: 0.00 * (5.00 + 0.50) = 0.00

SW metrics:		Total	Average	Maximum	Function name
	Functions:	1	--	--	--
	Lines of code:	169	169.00 ± 0.00	169	main
	Cyclomatic complexity:	49	49.00 ± 0.00	49	main

11	2021-10-22 19:33:47	Download

Submission status:	Evaluated
Evaluation:	0.0000

- **Evaluator: computer**
  - Program compiled
  - Test 'Basic test with example input data': failed
    - result: 60.00 %, required: 100.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.052 s
    - Mandatory test failed, evaluation: 0.00 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Overall ratio: 0.00 %
- Total percent: 0.00 %
- Early submission bonus: 0.50
- Total points: 0.00 * (5.00 + 0.50) = 0.00

SW metrics:		Total	Average	Maximum	Function name
	Functions:	1	--	--	--
	Lines of code:	169	169.00 ± 0.00	169	main
	Cyclomatic complexity:	50	50.00 ± 0.00	50	main

10	2021-10-22 19:28:36	Download

Submission status:	Evaluated

Evaluation: 4.5697

- **Evaluator: computer**
  - Program compiled
  - Test 'Basic test with example input data': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.007 s (limit: 1.000 s)
    - Total run time: 0.063 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success
    - result: 87.88 %, required: 50.00 %
    - Max. run time: 0.007 s (limit: 1.000 s)
    - Total run time: 0.213 s
    - Optional test success, evaluation: 87.88 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - ☑ Failed (invalid output)
      - ☑ Input data **[52 B / 52 B]**

        ```
        T 911e-73 904e-73 421e-73
        T 541e-73 877e-73 808e-73
        ```

      - ☑ Output data **[24 B / 24 B]**

        ```
        Shape #1
        Invalid input.
        ```

      - ☑ Reference **[87 B / 87 B]**

        ```
        Shape #1
        Shape #2
        Perimeter: triangle #1 > triangle #2
        Area: triangle #1 < triangle #2
        ```

  - Test 'Invalid input test': success
    - result: 94.55 %, required: 50.00 %
    - Max. run time: 0.007 s (limit: 1.000 s)
    - Total run time: 0.360 s
    - Optional test success, evaluation: 94.55 %
    - Failed (invalid output)
    - Failed (invalid output)
    - ☑ Failed (invalid output)
      - ☑ Input data **[15 B / 15 B]**

        ```
        S 12
        R 248 248
        ```

      - ☑ Output data **[85 B / 85 B]**

        ```
        Shape #1
        Shape #2
        Perimeter: square #1 < rectangle #2
        Area: square #1 < rectangle #2
        ```

      - ☑ Reference **[33 B / 33 B]**

        ```
        Shape #1
        Shape #2
        Invalid input.
        ```

  - Test 'Random test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.007 s (limit: 1.000 s)
    - Total run time: 0.128 s
    - Optional test success, evaluation: 100.00 %
  - Overall ratio: 83.09 % (= 1.00 * 0.88 * 0.95 * 1.00)
- Total percent: 83.09 %
- Early submission bonus: 0.50
- Total points: 0.83 * (5.00 + 0.50) = 4.57

		Total	Average	Maximum	Function name
SW metrics:	Functions:	**1**	--	--	--
	Lines of code:	**169**	**169.00 ± 0.00**	**169**	main
	Cyclomatic complexity:	**50**	**50.00 ± 0.00**	**50**	main

Submission status:	Evaluated
Evaluation:	4.5697

- **Evaluator: computer**
  - Program compiled
  - Test 'Basic test with example input data': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.050 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success
    - result: 87.88 %, required: 50.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.148 s
    - Optional test success, evaluation: 87.88 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Test 'Invalid input test': success
    - result: 94.55 %, required: 50.00 %
    - Max. run time: 0.005 s (limit: 1.000 s)
    - Total run time: 0.216 s
    - Optional test success, evaluation: 94.55 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Test 'Random test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.005 s (limit: 1.000 s)
    - Total run time: 0.068 s
    - Optional test success, evaluation: 100.00 %
  - Overall ratio: 83.09 % (= 1.00 * 0.88 * 0.95 * 1.00)
- Total percent: 83.09 %
- Early submission bonus: 0.50
- Total points: 0.83 * (5.00 + 0.50) = 4.57

SW metrics:		Total	Average	Maximum	Function name
	Functions:	**1**	--	--	--
	Lines of code:	**157**	**157.00 ± 0.00**	**157**	main
	Cyclomatic complexity:	**48**	**48.00 ± 0.00**	**48**	main

Submission status:	Evaluated
Evaluation:	4.0970

- **Evaluator: computer**
  - Program compiled
  - Test 'Basic test with example input data': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.052 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success
    - result: 78.79 %, required: 50.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.163 s
    - Optional test success, evaluation: 78.79 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Test 'Invalid input test': success
    - result: 94.55 %, required: 50.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.257 s
    - Optional test success, evaluation: 94.55 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)

- Test 'Random test': success
  - result: 100.00 %, required: 50.00 %
  - Max. run time: 0.006 s (limit: 1.000 s)
  - Total run time: 0.093 s
  - Optional test success, evaluation: 100.00 %
- Overall ratio: 74.50 % (= 1.00 * 0.79 * 0.95 * 1.00)
- Total percent: 74.50 %
- Early submission bonus: 0.50
- Total points: 0.74 * (5.00 + 0.50) = 4.10

SW metrics:		Total	Average	Maximum	Function name
	Functions:	1	--	--	--
	Lines of code:	157	157.00 ± 0.00	157	main
	Cyclomatic complexity:	48	48.00 ± 0.00	48	main

7	2021-10-22 19:13:36	Download

Submission status:	Evaluated
Evaluation:	4.2545

- **Evaluator: computer**
  - Program compiled
  - Test 'Basic test with example input data': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.007 s (limit: 1.000 s)
    - Total run time: 0.067 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success
    - result: 81.82 %, required: 50.00 %
    - Max. run time: 0.007 s (limit: 1.000 s)
    - Total run time: 0.218 s
    - Optional test success, evaluation: 81.82 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Test 'Invalid input test': success
    - result: 94.55 %, required: 50.00 %
    - Max. run time: 0.007 s (limit: 1.000 s)
    - Total run time: 0.360 s
    - Optional test success, evaluation: 94.55 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Test 'Random test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.007 s (limit: 1.000 s)
    - Total run time: 0.133 s
    - Optional test success, evaluation: 100.00 %
  - Overall ratio: 77.36 % (= 1.00 * 0.82 * 0.95 * 1.00)
- Total percent: 77.36 %
- Early submission bonus: 0.50
- Total points: 0.77 * (5.00 + 0.50) = 4.25

SW metrics:		Total	Average	Maximum	Function name
	Functions:	1	--	--	--
	Lines of code:	157	157.00 ± 0.00	157	main
	Cyclomatic complexity:	48	48.00 ± 0.00	48	main

6	2021-10-22 19:11:48	Download

Submission status:	Evaluated
Evaluation:	4.2545

- **Evaluator: computer**
  - Program compiled
  - Test 'Basic test with example input data': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.052 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success

- result: 81.82 %, required: 50.00 %
- Max. run time: 0.005 s (limit: 1.000 s)
- Total run time: 0.139 s
- Optional test success, evaluation: 81.82 %
- Failed (invalid output)
- Failed (invalid output)
- Failed (invalid output)
- Failed (invalid output)
- Failed (invalid output)
- Failed (invalid output)
  - Test 'Invalid input test': success
    - result: 94.55 %, required: 50.00 %
    - Max. run time: 0.005 s (limit: 1.000 s)
    - Total run time: 0.222 s
    - Optional test success, evaluation: 94.55 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Test 'Random test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.081 s
    - Optional test success, evaluation: 100.00 %
  - Overall ratio: 77.36 % (= 1.00 * 0.82 * 0.95 * 1.00)
- Total percent: 77.36 %
- Early submission bonus: 0.50
- Total points: 0.77 * (5.00 + 0.50) = 4.25

		Total	Average	Maximum	Function name
SW metrics:	Functions:	**1**	--	--	--
	Lines of code:	**157**	**157.00 ± 0.00**	**157**	main
	Cyclomatic complexity:	**48**	**48.00 ± 0.00**	**48**	main

5	2021-10-22 19:08:39	**Download**

Submission status:	Evaluated
Evaluation:	3.7818

- **Evaluator: computer**
  - Program compiled
  - Test 'Basic test with example input data': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.007 s (limit: 1.000 s)
    - Total run time: 0.060 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success
    - result: 72.73 %, required: 50.00 %
    - Max. run time: 0.007 s (limit: 1.000 s)
    - Total run time: 0.176 s
    - Optional test success, evaluation: 72.73 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Test 'Invalid input test': success
    - result: 94.55 %, required: 50.00 %
    - Max. run time: 0.007 s (limit: 1.000 s)
    - Total run time: 0.292 s
    - Optional test success, evaluation: 94.55 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Test 'Random test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.007 s (limit: 1.000 s)
    - Total run time: 0.112 s
    - Optional test success, evaluation: 100.00 %
  - Overall ratio: 68.77 % (= 1.00 * 0.73 * 0.95 * 1.00)
- Total percent: 68.77 %
- Early submission bonus: 0.50
- Total points: 0.69 * (5.00 + 0.50) = 3.78

		Total	Average	Maximum	Function name
SW metrics:	Functions:	1	--	--	--
	Lines of code:	157	157.00 ± 0.00	157	main
	Cyclomatic complexity:	48	48.00 ± 0.00	48	main

4	2021-10-22 17:43:57	Download
Submission status:	Evaluated	
Evaluation:	4.2545	

- **Evaluator: computer**
  - Program compiled
  - Test 'Basic test with example input data': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.052 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success
    - result: 81.82 %, required: 50.00 %
    - Max. run time: 0.005 s (limit: 1.000 s)
    - Total run time: 0.153 s
    - Optional test success, evaluation: 81.82 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Test 'Invalid input test': success
    - result: 94.55 %, required: 50.00 %
    - Max. run time: 0.005 s (limit: 1.000 s)
    - Total run time: 0.229 s
    - Optional test success, evaluation: 94.55 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
  - Test 'Random test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.005 s (limit: 1.000 s)
    - Total run time: 0.076 s
    - Optional test success, evaluation: 100.00 %
  - Overall ratio: 77.36 % (= 1.00 * 0.82 * 0.95 * 1.00)
- Total percent: 77.36 %
- Early submission bonus: 0.50
- Total points: 0.77 * (5.00 + 0.50) = 4.25

		Total	Average	Maximum	Function name
SW metrics:	Functions:	1	--	--	--
	Lines of code:	157	157.00 ± 0.00	157	main
	Cyclomatic complexity:	48	48.00 ± 0.00	48	main

3	2021-10-22 17:36:06	Download
Submission status:	Evaluated	
Evaluation:	4.0970	

- **Evaluator: computer**
  - Program compiled
  - Test 'Basic test with example input data': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.051 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success
    - result: 78.79 %, required: 50.00 %
    - Max. run time: 0.006 s (limit: 1.000 s)
    - Total run time: 0.149 s
    - Optional test success, evaluation: 78.79 %
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)
    - Failed (invalid output)

- Failed (invalid output)
    - Test 'Invalid input test': success
        - result: 94.55 %, required: 50.00 %
        - Max. run time: 0.006 s (limit: 1.000 s)
        - Total run time: 0.252 s
        - Optional test success, evaluation: 94.55 %
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
    - Test 'Random test': success
        - result: 100.00 %, required: 50.00 %
        - Max. run time: 0.006 s (limit: 1.000 s)
        - Total run time: 0.099 s
        - Optional test success, evaluation: 100.00 %
    - Overall ratio: 74.50 % (= 1.00 * 0.79 * 0.95 * 1.00)
- Total percent: 74.50 %
- Early submission bonus: 0.50
- Total points: 0.74 * (5.00 + 0.50) = 4.10

SW metrics:		Total	Average	Maximum	Function name
	Functions:	1	--	--	--
	Lines of code:	157	157.00 ± 0.00	157	main
	Cyclomatic complexity:	48	48.00 ± 0.00	48	main

2	2021-10-22 13:16:40	Download

Submission status:	Evaluated
Evaluation:	4.0970

- **Evaluator: computer**
    - Program compiled
    - Test 'Basic test with example input data': success
        - result: 100.00 %, required: 100.00 %
        - Max. run time: 0.007 s (limit: 1.000 s)
        - Total run time: 0.053 s
        - Mandatory test success, evaluation: 100.00 %
    - Test 'Borderline test': success
        - result: 78.79 %, required: 50.00 %
        - Max. run time: 0.005 s (limit: 1.000 s)
        - Total run time: 0.139 s
        - Optional test success, evaluation: 78.79 %
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
    - Test 'Invalid input test': success
        - result: 94.55 %, required: 50.00 %
        - Max. run time: 0.006 s (limit: 1.000 s)
        - Total run time: 0.250 s
        - Optional test success, evaluation: 94.55 %
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
    - Test 'Random test': success
        - result: 100.00 %, required: 50.00 %
        - Max. run time: 0.006 s (limit: 1.000 s)
        - Total run time: 0.090 s
        - Optional test success, evaluation: 100.00 %
    - Overall ratio: 74.50 % (= 1.00 * 0.79 * 0.95 * 1.00)
- Total percent: 74.50 %
- Early submission bonus: 0.50
- Total points: 0.74 * (5.00 + 0.50) = 4.10

SW metrics:		Total	Average	Maximum	Function name
	Functions:	1	--	--	--
	Lines of code:	157	157.00 ± 0.00	157	main
	Cyclomatic complexity:	48	48.00 ± 0.00	48	main

1	2021-10-22 13:01:48	Download

Submission status:	Evaluated

Evaluation: 4.2545

- **Evaluator: computer**
    - Program compiled
    - Test 'Basic test with example input data': success
        - result: 100.00 %, required: 100.00 %
        - Max. run time: 0.007 s (limit: 1.000 s)
        - Total run time: 0.056 s
        - Mandatory test success, evaluation: 100.00 %
    - Test 'Borderline test': success
        - result: 81.82 %, required: 50.00 %
        - Max. run time: 0.006 s (limit: 1.000 s)
        - Total run time: 0.176 s
        - Optional test success, evaluation: 81.82 %
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
    - Test 'Invalid input test': success
        - result: 94.55 %, required: 50.00 %
        - Max. run time: 0.006 s (limit: 1.000 s)
        - Total run time: 0.279 s
        - Optional test success, evaluation: 94.55 %
        - Failed (invalid output)
        - Failed (invalid output)
        - Failed (invalid output)
    - Test 'Random test': success
        - result: 100.00 %, required: 50.00 %
        - Max. run time: 0.007 s (limit: 1.000 s)
        - Total run time: 0.112 s
        - Optional test success, evaluation: 100.00 %
    - Overall ratio: 77.36 % (= 1.00 * 0.82 * 0.95 * 1.00)
- Total percent: 77.36 %
- Early submission bonus: 0.50
- Total points: 0.77 * (5.00 + 0.50) = 4.25

	Total	Average	Maximum	Function name
SW metrics:				
Functions:	**1**	--	--	--
Lines of code:	**157**	**157.00 ± 0.00**	**157**	main
Cyclomatic complexity:	**49**	**49.00 ± 0.00**	**49**	main