

## Sum of divisors

<b>Submission deadline:</b>	<b>2022-11-07 11:59:59</b>
<b>Late submission with malus:</b>	<b>2022-12-31 23:59:59</b> (Late submission malus: 100.0000 %)
<b>Evaluation:</b>	<b>5.5000</b>
<b>Max. assessment:</b>	<b>5.0000</b> (Without bonus points)
<b>Submissions:</b>	17 / 20 Free retries + 10 Penalized retries (-10 % penalty each retry)
<b>Advices:</b>	1 / 2 Advices for free + 2 Advices with a penalty (-10 % penalty each advice)

The problem is to develop a program which counts and lists integers where the sum of proper divisors is a prime.

A proper divisor of  $x$  is a divisor of  $x$  that is smaller than  $x$ . For instance, there are three proper divisors of 27: 1, 3, and 9. We are interested in the sum of the proper divisors. In the case of 27, the sum is  $1+3+9=13$ . Since 13 is a prime, 27 is a number with prime sum of its proper divisors. The program will search such numbers in the given intervals.

The input of the program is a list of intervals. The list may be arbitrarily long. The program is expected to read the intervals from the input and count/print the results. The program terminates when the last interval is processed, i.e., when EOF is reached. Each input interval is entered as a three-tuple: `? lo hi` or `# lo hi`. Integer numbers `lo` and `hi` define the boundaries of the closed interval to search (the interval is closed, i.e., the boundaries are included in the search). The first character defines the type of the answer. If the character is `?`, then the program lists all numbers in the given interval where the sum of proper divisors is a prime. Following the list, there is the number of results found. The second option is type `#`. Here, only the number of results is to be printed.

The output of the program is an answers for each input problem (interval). The answer is either:

- the list of numbers and the count (answer type `?`). The list of numbers is printed in an ascending order, or
- the count (answer type `#`).

The output format is clear from the attached example runs. All output lines are terminated by a newline.

The program must detect invalid input. If an invalid limit is detected (negative, non-numerical, zero, ...), the program must print an error message and terminate. The error message is terminated by a newline. The following is considered an error:

- invalid answer type (valid types are `?` and `#`),
- interval boundary is not a valid integer,
- lower bound is smaller than 1, or
- upper bound is smaller than lower bound.

This problem is evaluated in a "bonus" mode. A solution based on the naive algorithm passes all regular tests and will be awarded nominal points (the implementation still needs to be reasonably efficient). To pass the bonus test, you need to develop a faster solution and use a faster algorithm. The bonus test enters many input intervals, moreover, input intervals are big.

### Example program output:

#### Intervals:

? 1 10

4

8

Total: 2

#### Intervals:

? 27 27

27

**Total: 1**  
? 100 120  
**111**  
**115**  
**Total: 2**  
# 100 120  
**Total: 2**

**Intervals:**  
? 265 327  
**265**  
**275**  
**279**  
**291**  
**299**  
**305**  
**309**  
**319**  
**323**  
**324**  
**325**  
**327**  
**Total: 12**  
# 265 327  
**Total: 12**

**Intervals:**  
# 1761 2242  
**Total: 50**

**Intervals:**  
# 358 221  
**Invalid input.**

**Intervals:**  
! 10 20  
**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.
- The bonus tests inputs mostly intervals with answers of type #. The list of resulting numbers would slow down the program drastically.
- The testing inputs intervals of a reasonable length. The upper bound does not exceed 5000000, even the bonus test falls below this limit.
- The bonus tests require some knowledge not covered by PA1 yet (but hey, they are bonus tests).
- Number 1 is not a prime, number 2 is a prime.

**Sample data:**

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**Submit:**

Choose File

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☐ Reference

172022-10-27 15:43:46Download

Submission status:Evaluated

Evaluation:5.5000

• Evaluator: computer

◦ Program compiled

◦ Test 'Základní test s parametry podle ukázky': success

▪ result: 100.00 %, required: 100.00 %

▪ Max. run time: 0.005 s (limit: 0.200 s)

▪ Total run time: 0.029 s

▪ Mandatory test success, evaluation: 100.00 %

◦ Test 'Borderline test': success

▪ result: 100.00 %, required: 50.00 %

▪ Max. run time: 0.005 s (limit: 1.000 s)

▪ Total run time: 0.093 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: 0.044 s

▪ Optional test success, evaluation: 100.00 %

◦ Test 'Random test': success

▪ result: 100.00 %, required: 50.00 %

▪ Max. run time: 0.008 s (limit: 1.000 s)

▪ Total run time: 0.067 s

▪ Optional test success, evaluation: 100.00 %

◦ Test 'Speed test I': success

▪ result: 100.00 %, required: 50.00 %

▪ Max. run time: 0.958 s (limit: 2.000 s)

▪ Total run time: 1.563 s

▪ Optional test success, evaluation: 100.00 %

◦ Test 'Speed test II': Abnormal program termination (Time limit exceeded)

▪ Program was killed after: 3.009 s (limit: 3.000 s)

▪ Bonus test - failed, evaluation: No bonus awarded

▪ Time limit exceeded [Unlock advice (45 B)]

◦ Test 'Speed test III': Not tested

▪ Bonus test - failed, evaluation: No bonus awarded

◦ Overall ratio: 100.00 % (= 1.00 \* 1.00 \* 1.00 \* 1.00 \* 1.00)

• Advices used: 1

• Penalty due to advices: None (1 <= 2 limit)

• Total percent: 100.00 %

• Early submission bonus: 0.50

• Total points: 1.00 \* ( 5.00 + 0.50 ) = 5.50

SW metrics:

Functions:

5

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-- --

Lines of code:

86

17.20 ± 7.19

31

main

Cyclomatic complexity:

24

4.80 ± 1.94

8

main

<b>16</b>	<b>2022-10-27 15:43:00</b>	<a href="#">Download</a>
<b>Submission status:</b>	Evaluated	
<b>Evaluation:</b>	5.5000	

- **Evaluator: computer**

- Program compiled
- Test 'Základní test s parametry podle ukázky': success
  - result: 100.00 %, required: 100.00 %
  - Max. run time: 0.006 s (limit: 0.200 s)
  - Total run time: 0.031 s
  - Mandatory test success, evaluation: 100.00 %
- Test 'Borderline test': success
  - result: 100.00 %, required: 50.00 %
  - Max. run time: 0.005 s (limit: 1.000 s)
  - Total run time: 0.093 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: 0.045 s
  - Optional test success, evaluation: 100.00 %
- Test 'Random test': success
  - result: 100.00 %, required: 50.00 %
  - Max. run time: 0.008 s (limit: 1.000 s)
  - Total run time: 0.066 s
  - Optional test success, evaluation: 100.00 %
- Test 'Speed test I': success
  - result: 100.00 %, required: 50.00 %
  - Max. run time: 0.975 s (limit: 2.000 s)
  - Total run time: 1.531 s
  - Optional test success, evaluation: 100.00 %
- Test 'Speed test II': Abnormal program termination (Time limit exceeded)
  - Program was killed after: 3.002 s (limit: 3.000 s)
  - Bonus test - failed, evaluation: No bonus awarded
  - Time limit exceeded **[Unlock advice (44 B)]**
- Test 'Speed test III': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Overall ratio: 100.00 % (= 1.00 \* 1.00 \* 1.00 \* 1.00 \* 1.00)
- Advices used: 1
- Penalty due to advices: None (1 <= 2 limit)
- Total percent: 100.00 %
- Early submission bonus: 0.50
- Total points: 1.00 \* ( 5.00 + 0.50 ) = 5.50

		Total	Average	Maximum	Function name
<b>SW metrics:</b>	Functions:	<b>5</b>	--	-- --	
	Lines of code:	<b>94</b>	<b>18.80 ± 7.63</b>	<b>31</b>	main
	Cyclomatic complexity:	<b>28</b>	<b>5.60 ± 2.87</b>	<b>10</b>	primeSumDivisor

<b>15</b>	<b>2022-10-26 01:15:17</b>	<b>Download</b>
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<b>Submission status:</b>	Evaluated
<b>Evaluation:</b>	5.5000

- **Evaluator: computer**

- Program compiled
- Test 'Základní test s parametry podle ukázky': success
  - result: 100.00 %, required: 100.00 %
  - Max. run time: 0.005 s (limit: 0.200 s)
  - Total run time: 0.028 s
  - Mandatory test success, evaluation: 100.00 %
- Test 'Borderline test': success

- result: 100.00 %, required: 50.00 %
- Max. run time: 0.005 s (limit: 1.000 s)
- Total run time: 0.092 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: 0.044 s
  - Optional test success, evaluation: 100.00 %
- Test 'Random test': success
  - result: 100.00 %, required: 50.00 %
  - Max. run time: 0.008 s (limit: 1.000 s)
  - Total run time: 0.068 s
  - Optional test success, evaluation: 100.00 %
- Test 'Speed test I': success
  - result: 100.00 %, required: 50.00 %
  - Max. run time: 0.972 s (limit: 2.000 s)
  - Total run time: 1.583 s
  - Optional test success, evaluation: 100.00 %
- Test 'Speed test II': Abnormal program termination (Time limit exceeded)
  - Program was killed after: 3.005 s (limit: 3.000 s)
  - Bonus test - failed, evaluation: No bonus awarded
  - ☐ Time limit exceeded
- Test 'Speed test III': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Overall ratio: 100.00 % (= 1.00 \* 1.00 \* 1.00 \* 1.00 \* 1.00)
- Total percent: 100.00 %
- Early submission bonus: 0.50
- Total points: 1.00 \* ( 5.00 + 0.50 ) = 5.50

	Total	Average	Maximum	Function name
<b>SW metrics:</b>				
Functions:	<b>5</b>	--	-- --	
Lines of code:	<b>86</b>	<b>17.20 ± 7.19</b>	<b>31</b>	main
Cyclomatic complexity:	<b>24</b>	<b>4.80 ± 1.94</b>	<b>8</b>	main

**14** **2022-10-24 20:48:46** [Download](#)

**Submission status:** Evaluated

**Evaluation:** 2.7500

- **Evaluator: computer**
  - Program compiled
  - Test 'Základní test s parametry podle ukázky': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.010 s (limit: 0.200 s)
    - Total run time: 0.034 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline 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 %
  - Test 'Invalid input test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.005 s (limit: 1.000 s)
    - Total run time: 0.042 s
    - Optional test success, evaluation: 100.00 %

- Test 'Random test': success
  - result: 100.00 %, required: 50.00 %
  - Max. run time: 0.028 s (limit: 1.000 s)
  - Total run time: 0.166 s
  - Optional test success, evaluation: 100.00 %
- Test 'Speed test I': Abnormal program termination (Time limit exceeded)
  - Program was killed after: 2.003 s (limit: 2.000 s)
  - Optional test failed, evaluation: 50.00 %
  - Time limit exceeded **[Unlock advice (37 B)]**
- Test 'Speed test II': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Test 'Speed test III': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Overall ratio: 50.00 % (= 1.00 \* 1.00 \* 1.00 \* 1.00 \* 0.50)
- Total percent: 50.00 %
- Early submission bonus: 0.50
- Total points: 0.50 \* ( 5.00 + 0.50 ) = 2.75

	Total	Average	Maximum	Function name
<b>SW metrics:</b>				
Functions:	<b>5</b>	--	-- --	
Lines of code:	<b>81</b>	<b>16.20 ± 7.63</b>	<b>31</b>	main
Cyclomatic complexity:	<b>23</b>	<b>4.60 ± 2.06</b>	<b>8</b>	main

**13** **2022-10-24 20:10:10** [Download](#)

**Submission status:** Evaluated

**Evaluation:** 2.7500

- **Evaluator: computer**
  - Program compiled
  - Test 'Základní test s parametry podle ukázky': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.014 s (limit: 0.200 s)
    - Total run time: 0.040 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.005 s (limit: 1.000 s)
    - Total run time: 0.092 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: 0.043 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Random test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.045 s (limit: 1.000 s)
    - Total run time: 0.276 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Speed test I': Abnormal program termination (Time limit exceeded)
    - Program was killed after: 2.004 s (limit: 2.000 s)
    - Optional test failed, evaluation: 50.00 %
    - Time limit exceeded **[Unlock advice (38 B)]**
  - Test 'Speed test II': Not tested
    - Bonus test - failed, evaluation: No bonus awarded
  - Test 'Speed test III': Not tested
    - Bonus test - failed, evaluation: No bonus awarded

- Overall ratio: 50.00 % (= 1.00 \* 1.00 \* 1.00 \* 1.00 \* 0.50)
- Total percent: 50.00 %
- Early submission bonus: 0.50
- Total points: 0.50 \* ( 5.00 + 0.50 ) = 2.75

		Total	Average	Maximum	Function name
<b>SW metrics:</b>	Functions:	<b>5</b>	--	-- --	
	Lines of code:	<b>81</b>	<b>16.20 ± 7.52</b>	<b>31</b>	main
	Cyclomatic complexity:	<b>21</b>	<b>4.20 ± 1.94</b>	<b>8</b>	main

**12** **2022-10-24 03:38:37** [Download](#)

**Submission status:** Evaluated

**Evaluation:** 2.7500

- **Evaluator: computer**
  - Program compiled
  - Test 'Základní test s parametry podle ukázky': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.012 s (limit: 0.200 s)
    - Total run time: 0.037 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.005 s (limit: 1.000 s)
    - Total run time: 0.094 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: 0.043 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Random test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.043 s (limit: 1.000 s)
    - Total run time: 0.269 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Speed test I': Abnormal program termination (Time limit exceeded)
    - Program was killed after: 2.005 s (limit: 2.000 s)
    - Optional test failed, evaluation: 50.00 %
    - Time limit exceeded **[Unlock advice (39 B)]**
  - Test 'Speed test II': Not tested
    - Bonus test - failed, evaluation: No bonus awarded
  - Test 'Speed test III': Not tested
    - Bonus test - failed, evaluation: No bonus awarded
  - Overall ratio: 50.00 % (= 1.00 \* 1.00 \* 1.00 \* 1.00 \* 0.50)
- Total percent: 50.00 %
- Early submission bonus: 0.50
- Total points: 0.50 \* ( 5.00 + 0.50 ) = 2.75

		Total	Average	Maximum	Function name
<b>SW metrics:</b>	Functions:	<b>5</b>	--	-- --	
	Lines of code:	<b>82</b>	<b>16.40 ± 7.50</b>	<b>31</b>	main
	Cyclomatic complexity:	<b>21</b>	<b>4.20 ± 1.94</b>	<b>8</b>	main

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2022-10-24 03:38:12

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Submission status: Evaluated

Evaluation: 1.8333

- **Evaluator: computer**

- Program compiled
- Test 'Základní test s parametry podle ukázky': success
  - result: 100.00 %, required: 100.00 %
  - Max. run time: 0.009 s (limit: 0.200 s)
  - Total run time: 0.035 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: 0.094 s
  - Optional test success, evaluation: 100.00 %
- Test 'Invalid input test': success
  - result: 66.67 %, required: 50.00 %
  - Max. run time: 0.005 s (limit: 1.000 s)
  - Total run time: 0.045 s
  - Optional test success, evaluation: 66.67 %
  - Failed (invalid output) **[Unlock advice (47 B)]**
  - Failed (invalid output) **[Unlock advice (46 B)]**
  - Failed (invalid output) **[Unlock advice (46 B)]**
- Test 'Random test': success
  - result: 100.00 %, required: 50.00 %
  - Max. run time: 0.040 s (limit: 1.000 s)
  - Total run time: 0.272 s
  - Optional test success, evaluation: 100.00 %
- Test 'Speed test I': Abnormal program termination (Time limit exceeded)
  - Program was killed after: 2.006 s (limit: 2.000 s)
  - Optional test failed, evaluation: 50.00 %
  - Time limit exceeded **[Unlock advice (39 B)]**
- Test 'Speed test II': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Test 'Speed test III': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Overall ratio: 33.34 % (= 1.00 \* 1.00 \* 0.67 \* 1.00 \* 0.50)
- Total percent: 33.34 %
- Early submission bonus: 0.50
- Total points:  $0.33 * (5.00 + 0.50) = 1.83$

		Total	Average	Maximum	Function name
<b>SW metrics:</b>	Functions:	<b>5</b>	--	-- --	
	Lines of code:	<b>77</b>	<b>15.40 ± 5.57</b>	<b>26</b>	main
	Cyclomatic complexity:	<b>20</b>	<b>4.00 ± 1.55</b>	<b>7</b>	main

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2022-10-24 03:31:21

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Submission status: Evaluated

Evaluation: 2.7500

- **Evaluator: computer**

- Program compiled
- Test 'Základní test s parametry podle ukázky': success
  - result: 100.00 %, required: 100.00 %



- Max. run time: 0.013 s (limit: 0.200 s)
  - Total run time: 0.038 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: 0.096 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: 0.044 s
  - Optional test success, evaluation: 100.00 %
- Test 'Random test': success
  - result: 100.00 %, required: 50.00 %
  - Max. run time: 0.046 s (limit: 1.000 s)
  - Total run time: 0.289 s
  - Optional test success, evaluation: 100.00 %
- Test 'Speed test I': Abnormal program termination (Time limit exceeded)
  - Program was killed after: 2.005 s (limit: 2.000 s)
  - Optional test failed, evaluation: 50.00 %
  - Time limit exceeded **[Unlock advice (39 B)]**
- Test 'Speed test II': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Test 'Speed test III': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Overall ratio: 50.00 % (= 1.00 \* 1.00 \* 1.00 \* 1.00 \* 0.50)
- Total percent: 50.00 %
- Early submission bonus: 0.50
- Total points: 0.50 \* ( 5.00 + 0.50 ) = 2.75

	Total	Average	Maximum	Function name
<b>SW metrics:</b>				
Functions:	<b>5</b>	--	-- --	
Lines of code:	<b>82</b>	<b>16.40 ± 7.50</b>	<b>31</b>	main
Cyclomatic complexity:	<b>21</b>	<b>4.20 ± 1.94</b>	<b>8</b>	main

9	2022-10-24 03:05:13	Download
Submission status:	Evaluated	
Evaluation:	2.7500	
<ul style="list-style-type: none"><li>• <b>Evaluator: computer</b><ul style="list-style-type: none"><li>◦ Program compiled</li><li>◦ Test 'Základní test s parametry podle ukázky': success<ul style="list-style-type: none"><li>▪ result: 100.00 %, required: 100.00 %</li><li>▪ Max. run time: 0.013 s (limit: 0.200 s)</li><li>▪ Total run time: 0.038 s</li><li>▪ Mandatory test success, evaluation: 100.00 %</li></ul></li><li>◦ Test 'Borderline test': success<ul style="list-style-type: none"><li>▪ result: 100.00 %, required: 50.00 %</li><li>▪ Max. run time: 0.005 s (limit: 1.000 s)</li><li>▪ Total run time: 0.090 s</li><li>▪ Optional test success, evaluation: 100.00 %</li></ul></li><li>◦ Test 'Invalid input test': success<ul style="list-style-type: none"><li>▪ result: 100.00 %, required: 50.00 %</li><li>▪ Max. run time: 0.005 s (limit: 1.000 s)</li><li>▪ Total run time: 0.044 s</li><li>▪ Optional test success, evaluation: 100.00 %</li></ul></li></ul></li></ul>		

- Test 'Random test': success
  - result: 100.00 %, required: 50.00 %
  - Max. run time: 0.046 s (limit: 1.000 s)
  - Total run time: 0.273 s
  - Optional test success, evaluation: 100.00 %
- Test 'Speed test I': Abnormal program termination (Time limit exceeded)
  - Program was killed after: 2.005 s (limit: 2.000 s)
  - Optional test failed, evaluation: 50.00 %
  - Time limit exceeded **[Unlock advice (39 B)]**
- Test 'Speed test II': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Test 'Speed test III': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Overall ratio: 50.00 % (= 1.00 \* 1.00 \* 1.00 \* 1.00 \* 0.50)
- Total percent: 50.00 %
- Early submission bonus: 0.50
- Total points: 0.50 \* ( 5.00 + 0.50 ) = 2.75

	Total	Average	Maximum	Function name
<b>SW metrics:</b>				
Functions:	<b>5</b>	--	-- --	
Lines of code:	<b>81</b>	<b>16.20 ± 7.11</b>	<b>30</b>	main
Cyclomatic complexity:	<b>21</b>	<b>4.20 ± 1.94</b>	<b>8</b>	main

<b>8</b>	<b>2022-10-24 03:01:52</b>	<b>Download</b>
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**Submission status:** Evaluated

**Evaluation:** 2.7500

- **Evaluator: computer**
  - Program compiled
  - Test 'Základní test s parametry podle ukázky': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.014 s (limit: 0.200 s)
    - Total run time: 0.040 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.005 s (limit: 1.000 s)
    - Total run time: 0.096 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: 0.042 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Random test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.041 s (limit: 1.000 s)
    - Total run time: 0.269 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Speed test I': Abnormal program termination (Time limit exceeded)
    - Program was killed after: 2.006 s (limit: 2.000 s)
    - Optional test failed, evaluation: 50.00 %
    - Time limit exceeded **[Unlock advice (38 B)]**
  - Test 'Speed test II': Not tested
    - Bonus test - failed, evaluation: No bonus awarded
  - Test 'Speed test III': Not tested
    - Bonus test - failed, evaluation: No bonus awarded

- Overall ratio: 50.00 % (= 1.00 \* 1.00 \* 1.00 \* 1.00 \* 0.50)
- Total percent: 50.00 %
- Early submission bonus: 0.50
- Total points: 0.50 \* ( 5.00 + 0.50 ) = 2.75

		Total	Average	Maximum	Function name
<b>SW metrics:</b>	Functions:	<b>5</b>	--	-- --	
	Lines of code:	<b>81</b>	<b>16.20 ± 7.11</b>	<b>30</b>	main
	Cyclomatic complexity:	<b>21</b>	<b>4.20 ± 1.94</b>	<b>8</b>	main

7

2022-10-24 03:00:26

[Download](#)**Submission status:** Evaluated**Evaluation:** 2.7500

- **Evaluator: computer**
  - Program compiled
  - Test 'Základní test s parametry podle ukázky': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.014 s (limit: 0.200 s)
    - Total run time: 0.039 s
    - Mandatory test success, evaluation: 100.00 %
  - Test 'Borderline test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.005 s (limit: 1.000 s)
    - Total run time: 0.091 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: 0.044 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Random test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.051 s (limit: 1.000 s)
    - Total run time: 0.234 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Speed test I': Abnormal program termination (Time limit exceeded)
    - Program was killed after: 2.003 s (limit: 2.000 s)
    - Optional test failed, evaluation: 50.00 %
    - Time limit exceeded **[Unlock advice (38 B)]**
  - Test 'Speed test II': Not tested
    - Bonus test - failed, evaluation: No bonus awarded
  - Test 'Speed test III': Not tested
    - Bonus test - failed, evaluation: No bonus awarded
  - Overall ratio: 50.00 % (= 1.00 \* 1.00 \* 1.00 \* 1.00 \* 0.50)
- Total percent: 50.00 %
- Early submission bonus: 0.50
- Total points: 0.50 \* ( 5.00 + 0.50 ) = 2.75

		Total	Average	Maximum	Function name
<b>SW metrics:</b>	Functions:	<b>5</b>	--	-- --	
	Lines of code:	<b>79</b>	<b>15.80 ± 7.17</b>	<b>30</b>	main
	Cyclomatic complexity:	<b>21</b>	<b>4.20 ± 1.94</b>	<b>8</b>	main

6

2022-10-24 02:56:29

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Submission status: Evaluated

Evaluation: 2.7500

- **Evaluator: computer**

- Program compiled
- Test 'Základní test s parametry podle ukázky': success
  - result: 100.00 %, required: 100.00 %
  - Max. run time: 0.013 s (limit: 0.200 s)
  - Total run time: 0.038 s
  - Mandatory test success, evaluation: 100.00 %
- Test 'Borderline 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 %
- Test 'Invalid input test': success
  - result: 100.00 %, required: 50.00 %
  - Max. run time: 0.005 s (limit: 1.000 s)
  - Total run time: 0.041 s
  - Optional test success, evaluation: 100.00 %
- Test 'Random test': success
  - result: 100.00 %, required: 50.00 %
  - Max. run time: 0.063 s (limit: 1.000 s)
  - Total run time: 0.390 s
  - Optional test success, evaluation: 100.00 %
- Test 'Speed test I': Abnormal program termination (Time limit exceeded)
  - Program was killed after: 2.005 s (limit: 2.000 s)
  - Optional test failed, evaluation: 50.00 %
  - Time limit exceeded **[Unlock advice (38 B)]**
- Test 'Speed test II': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Test 'Speed test III': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Overall ratio: 50.00 % (= 1.00 \* 1.00 \* 1.00 \* 1.00 \* 0.50)
- Total percent: 50.00 %
- Early submission bonus: 0.50
- Total points: 0.50 \* ( 5.00 + 0.50 ) = 2.75

		Total	Average	Maximum	Function name
<b>SW metrics:</b>	Functions:	<b>5</b>	--	--	--
	Lines of code:	<b>89</b>	<b>17.80 ± 7.76</b>	<b>30</b>	main
	Cyclomatic complexity:	<b>23</b>	<b>4.60 ± 2.06</b>	<b>8</b>	main

5

2022-10-24 02:55:49

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Submission status: Evaluated

Evaluation: 2.7500

- **Evaluator: computer**

- Program compiled
- Test 'Základní test s parametry podle ukázky': success
  - result: 100.00 %, required: 100.00 %
  - Max. run time: 0.017 s (limit: 0.200 s)
  - Total run time: 0.042 s
  - Mandatory test success, evaluation: 100.00 %

- Test 'Borderline test': success
  - result: 100.00 %, required: 50.00 %
  - Max. run time: 0.005 s (limit: 1.000 s)
  - Total run time: 0.090 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: 0.044 s
  - Optional test success, evaluation: 100.00 %
- Test 'Random test': success
  - result: 100.00 %, required: 50.00 %
  - Max. run time: 0.070 s (limit: 1.000 s)
  - Total run time: 0.412 s
  - Optional test success, evaluation: 100.00 %
- Test 'Speed test I': Abnormal program termination (Time limit exceeded)
  - Program was killed after: 2.003 s (limit: 2.000 s)
  - Optional test failed, evaluation: 50.00 %
  - Time limit exceeded **[Unlock advice (38 B)]**
- Test 'Speed test II': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Test 'Speed test III': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Overall ratio: 50.00 % (= 1.00 \* 1.00 \* 1.00 \* 1.00 \* 0.50)
- Total percent: 50.00 %
- Early submission bonus: 0.50
- Total points: 0.50 \* ( 5.00 + 0.50 ) = 2.75

	Total	Average	Maximum	Function name
<b>SW metrics:</b>				
Functions:	<b>5</b>	--	-- --	
Lines of code:	<b>89</b>	<b>17.80 ± 7.76</b>	<b>30</b>	main
Cyclomatic complexity:	<b>23</b>	<b>4.60 ± 2.06</b>	<b>8</b>	main

4

2022-10-24 02:44:52

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Submission status:

Evaluated

Evaluation:

2.7500

• Evaluator: computer

◦ Program compiled

◦ Test 'Základní test s parametry podle ukázky': success

▪ result: 100.00 %, required: 100.00 %

▪ Max. run time: 0.019 s (limit: 0.200 s)

▪ Total run time: 0.044 s

▪ Mandatory test success, evaluation: 100.00 %

◦ Test 'Borderline test': success

▪ result: 100.00 %, required: 50.00 %

▪ Max. run time: 0.005 s (limit: 1.000 s)

▪ Total run time: 0.095 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: 0.044 s

▪ Optional test success, evaluation: 100.00 %

◦ Test 'Random test': success

▪ result: 100.00 %, required: 50.00 %

▪ Max. run time: 0.064 s (limit: 1.000 s)

- Total run time: 0.395 s
- Optional test success, evaluation: 100.00 %
- Test 'Speed test I': Abnormal program termination (Time limit exceeded)
  - Program was killed after: 2.005 s (limit: 2.000 s)
  - Optional test failed, evaluation: 50.00 %
  - Time limit exceeded **[Unlock advice (37 B)]**
- Test 'Speed test II': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Test 'Speed test III': Not tested
  - Bonus test - failed, evaluation: No bonus awarded
- Overall ratio: 50.00 % (= 1.00 \* 1.00 \* 1.00 \* 1.00 \* 0.50)
- Total percent: 50.00 %
- Early submission bonus: 0.50
- Total points: 0.50 \* ( 5.00 + 0.50 ) = 2.75

		Total	Average	Maximum	Function name
<b>SW metrics:</b>	Functions:	<b>5</b>	--	--	--
	Lines of code:	<b>89</b>	<b>17.80 ± 7.76</b>	<b>30</b>	main
	Cyclomatic complexity:	<b>24</b>	<b>4.80 ± 2.40</b>	<b>9</b>	main

<b>3</b>	<b>2022-10-24 02:43:18</b>	<b>Download</b>
<b>Submission status:</b>	Evaluated	
<b>Evaluation:</b>	2.4750	

- **Evaluator: computer**
  - Compile in 'pedantic' mode failed (10 % penalty). **[Unlock advice (992 B)]**
  - Test 'Základní test s parametry podle ukázky': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.019 s (limit: 0.200 s)
    - Total run time: 0.044 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: 0.096 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: 0.046 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Random test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.064 s (limit: 1.000 s)
    - Total run time: 0.397 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Speed test I': Abnormal program termination (Time limit exceeded)
    - Program was killed after: 2.002 s (limit: 2.000 s)
    - Optional test failed, evaluation: 50.00 %
    - Time limit exceeded **[Unlock advice (39 B)]**
  - Test 'Speed test II': Not tested
    - Bonus test - failed, evaluation: No bonus awarded
  - Test 'Speed test III': Not tested
    - Bonus test - failed, evaluation: No bonus awarded
  - Overall ratio: 45.00 % (= (1.00 \* 1.00 \* 1.00 \* 1.00 \* 0.50) \* 0.9)
- Total percent: 45.00 %
- Early submission bonus: 0.50

- Total points:  $0.45 * (5.00 + 0.50) = 2.48$

		Total	Average	Maximum	Function name
<b>SW metrics:</b>	Functions:	<b>5</b>	--	--	--
	Lines of code:	<b>89</b>	<b>17.80 ± 7.76</b>	<b>30</b>	main
	Cyclomatic complexity:	<b>24</b>	<b>4.80 ± 2.40</b>	<b>9</b>	main

2

2022-10-24 02:40:32

[Download](#)**Submission status:** Evaluated**Evaluation:** 2.7500

- **Evaluator: computer**
  - Program compiled
  - Test 'Základní test s parametry podle ukázky': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.017 s (limit: 0.200 s)
    - Total run time: 0.042 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: 0.091 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: 0.043 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Random test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.065 s (limit: 1.000 s)
    - Total run time: 0.381 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Speed test I': Abnormal program termination (Time limit exceeded)
    - Program was killed after: 2.005 s (limit: 2.000 s)
    - Optional test failed, evaluation: 50.00 %
    - Time limit exceeded **[Unlock advice (38 B)]**
  - Test 'Speed test II': Not tested
    - Bonus test - failed, evaluation: No bonus awarded
  - Test 'Speed test III': Not tested
    - Bonus test - failed, evaluation: No bonus awarded
  - Overall ratio: 50.00 % (=  $1.00 * 1.00 * 1.00 * 1.00 * 0.50$ )
- Total percent: 50.00 %
- Early submission bonus: 0.50
- Total points:  $0.50 * (5.00 + 0.50) = 2.75$

		Total	Average	Maximum	Function name
<b>SW metrics:</b>	Functions:	<b>5</b>	--	--	--
	Lines of code:	<b>89</b>	<b>17.80 ± 7.76</b>	<b>30</b>	main
	Cyclomatic complexity:	<b>24</b>	<b>4.80 ± 2.40</b>	<b>9</b>	main

1

2022-10-24 02:37:18

[Download](#)**Submission status:** Evaluated

**Evaluation:** 2.7500

- **Evaluator: computer**
  - Program compiled
  - Test 'Základní test s parametry podle ukázky': success
    - result: 100.00 %, required: 100.00 %
    - Max. run time: 0.018 s (limit: 0.200 s)
    - Total run time: 0.044 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: 0.095 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: 0.044 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Random test': success
    - result: 100.00 %, required: 50.00 %
    - Max. run time: 0.061 s (limit: 1.000 s)
    - Total run time: 0.404 s
    - Optional test success, evaluation: 100.00 %
  - Test 'Speed test I': Abnormal program termination (Time limit exceeded)
    - Program was killed after: 2.002 s (limit: 2.000 s)
    - Optional test failed, evaluation: 50.00 %
    - Time limit exceeded **[Unlock advice (39 B)]**
  - Test 'Speed test II': Not tested
    - Bonus test - failed, evaluation: No bonus awarded
  - Test 'Speed test III': Not tested
    - Bonus test - failed, evaluation: No bonus awarded
  - Overall ratio: 50.00 % (= 1.00 \* 1.00 \* 1.00 \* 1.00 \* 0.50)
- Total percent: 50.00 %
- Early submission bonus: 0.50
- Total points: 0.50 \* ( 5.00 + 0.50 ) = 2.75

		Total	Average	Maximum	Function name
<b>SW metrics:</b>	Functions:	<b>5</b>	--	-- --	
	Lines of code:	<b>89</b>	<b>17.80 ± 7.76</b>	<b>30</b>	main
	Cyclomatic complexity:	<b>24</b>	<b>4.80 ± 2.40</b>	<b>9</b>	main