



Codeforces Online Judge

Prepared by: Mohamed Ayman

Algorithm Engineer at Valeo

Deep Learning Researcher and Teaching Assistant

at The American University in Cairo (AUC)

spring 2020

Valeo



THE AMERICAN
UNIVERSITY IN CAIRO



sw.eng.MohamedAyman@gmail.com



facebook.com/cs.MohamedAyman



linkedin.com/in/cs-MohamedAyman



github.com/cs-MohamedAyman



codeforces.com/profile/Mohamed_Ayman



Codeforces Online Judge Guide



Lecture Agenda

We will discuss in this lecture
the following topics

- 1- Codeforces Online Judge
 - 2- How to Create an Account
 - 3- How to Solve a Problem
 - 4- How to Learn from Other Solutions
 - 5- How to Compete in Contest
 - 6- How to Learn from Contest Tutorial
-



Let's
STARTUP

Lecture Agenda

Section 1: Codeforces Online Judge

Section 2: How to Create an Account

Section 3: How to Solve a Problem

Section 4: How to Learn from Other Solutions

Section 5: How to Compete in Contest

Section 6: How to Learn from Contest Tutorial



Codeforces Online Judge

Codeforces is a website that hosts competitive programming contests.

It is maintained by a group of competitive programmers from ITMO University led by Mikhail Mirzayanov.



Codeforces Online Judge



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HOME TOP CONTESTS GYM PROBLEMSET GROUPS RATING API HELP CALENDAR

MAIN ACMSGURU | PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

Problems

| # | Name | | | | |
|-----------------------|--|--|--|------|------------------------|
| 1294F | Three Paths on a Tree | dfs and similar, dp, trees | | 2100 | x1488 |
| 1294E | Obtain a Permutation | greedy, implementation, math | | 2000 | x1886 |
| 1294D | MEX maximizing | data structures, math | | 1600 | x4272 |
| 1294C | Product of Three Numbers | greedy, math, number theory | | 1300 | x8603 |
| 1294B | Collecting Packages | implementation, sortings | | 1200 | x9042 |
| 1294A | Collecting Coins | math | | 900 | x12769 |
| 1293B | JOE is on TV! | combinatorics, greedy, math | | 1000 | x9324 |
| 1293A | Conner and the A.R.C. Markland-N | binary search, brute force, implementation | | 1100 | x8075 |
| 1292F | Nora's Toy Boxes | bitmasks, combinatorics, dp | | 3400 | x24 |

→ Pay attention

Before contest
[Educational Codeforces Round 81](#)
(Rated for Div. 2)
3 days

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→ Filter Problems

Difficulty: —
[Add tag](#)

→ Settings

☒ Show tags for unsolved problems



Lecture Agenda

✓ Section 1: Codeforces Online Judge

Section 2: How to Create an Account

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Section 6: How to Learn from Contest Tutorial



How to Create an Account

1- Go To Registration

2- Fill Your Data

3- Verify your Registration from your Mail

4- Log-in Your Account



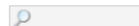
Codeforces Registration

Select Register from this Link: codeforces.com





 [Enter](#) | [Register](#)

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Forethought Future Cup — Final Round

By [Lewin](#), 3 days ago, , 

Hello again Codeforces!

The Forethought Future Cup Final round will start on [May 4th, 10:05am PDT](#). **This round will be rated for everyone.** There will be three separate rounds, one for onsite contestants, one for div1, and one for div2. Onsite and div1 will have the same problems. Each round will have 6 problems and be 2 hours long.

Here is a table of the onsite contestants.

| | | | | |
|------------------------------|------------------------------|------------------------------|-----------------------------|-----------------------------|
| scott_wu | neal | ACRush | Fdg | Ra16bit |
| Kenny_HORROR | liymbear | li931110 | xiaowuc1 | Suzukaze |
| yzyz | stevenkplus | pmnox | OpalDshawn | NEU20133823 |
| tap_tapii | Svlad_Cjelli | Emiso | davidberard | gojira |
| dinosaurs | batyrkhan14 | robot-dreams | kfqq | |

→ Pay attention

Before contest

[Forethought Future Cup - Final Round \(Onsite Finalists Only\)](#)
01:35:55

Before contest

[Codeforces Round #557 \(Div. 1\) \[based on Forethought Future Cup - Final Round\]](#)
01:35:55
[Register now »](#)
*has extra registration

Before contest

[Codeforces Round #557 \(Div. 2\) \[based on Forethought Future Cup - Final Round\]](#)
01:35:55
[Register now »](#)
*has extra registration



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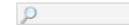
Registration Form

Fill your data and you will receive a verification mail



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Fill in the form to register in Codeforces.

You can skip this step and login with your [OpenID](#), [Gmail](#) or [Facebook](#) account.

Register in Codeforces

Handle

This means your username (nickname) on Codeforces. Be careful you will be able to change it only once in the first 7 days after registration.

Email

Password

Password should contain at least five characters

Confirm Password

Register

If you have already registered before, but have not received a confirmation email, please click [the link](#).

[Use OpenID](#) | [Use Gmail](#) | [Use Facebook](#)



Your Profile

After verification your account from your mail, your profile will be appeared from you



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MOHAMED_AYMAN SETTINGS LISTS BLOG TEAMS SUBMISSIONS GROUPS CONTESTS

Expert

Mohamed_Ayman

Mohamed Ayman, [Cairo, Egypt](#)
From [FCAI - Cairo university](#)

Contest rating: **1614** (max. expert, 1627)

Contribution: 0

Friend of: 193 users

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[Change settings](#)

[sw.eng.MohamedAyman@gmail.com](#) (not visible)

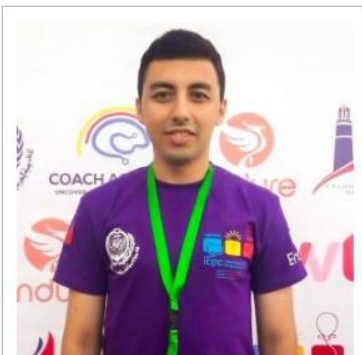
Last visit: **online now**

Registered: 6 years ago

[Blog entries \(1\), comments](#)

[Write new entry](#)

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Before contest

[Educational Codeforces Round 81](#)
(Rated for Div. 2)

4 days



133 people like this. Be the first of your friends.

→ Mohamed_Ayman

Rating: **1614**
Contribution: 0

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Lecture Agenda

✓ Section 1: Codeforces Online Judge

✓ Section 2: How to Create an Account

Section 3: How to Solve a Problem

Section 4: How to Learn from Other Solutions

Section 5: How to Compete in Contest

Section 6: How to Learn from Contest Tutorial



How to Solve a Problem

1- Read the Problem Statement

2- Think for a Problem Solution

3- Implement an Efficient & Correct Algorithm

4- Test Your Solution

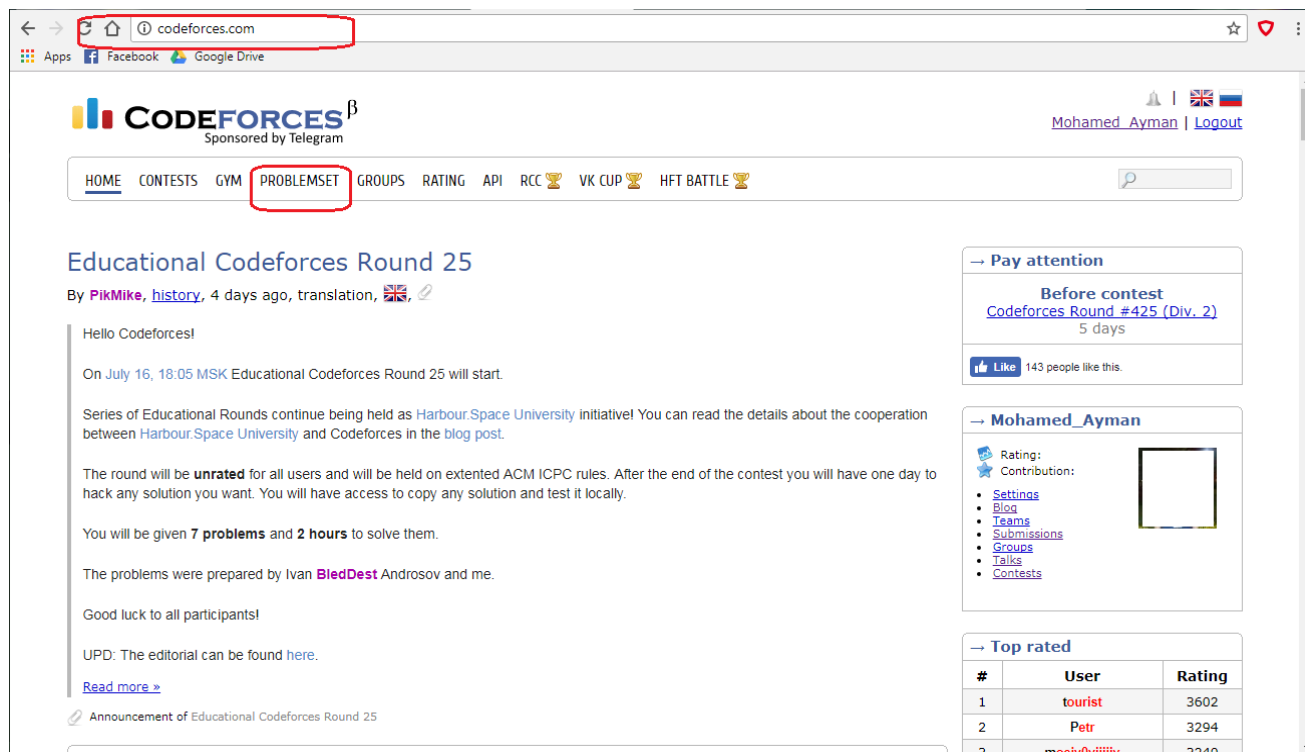
5- Submit Your Solution

6- Go to Step 1 Till You Get Accepted



Codeforces Wall

Select **Problemset** Tab to get all problems in codeforces




The screenshot shows the Codeforces website interface. The browser's address bar shows 'codeforces.com'. The navigation bar includes links for HOME, CONTESTS, GYM, **PROBLEMSET** (highlighted with a red box), GROUPS, RATING, API, RCC, VK CUP, and HFT BATTLE. The main content area displays the announcement for 'Educational Codeforces Round 25' by PikMike, dated 4 days ago. The announcement text includes details about the round's timing (July 16, 18:05 MSK), its nature as an unrated contest, and the number of problems and time given. A sidebar on the right contains a 'Pay attention' section for 'Before contest Codeforces Round #425 (Div. 2)' and a 'Mohamed_Ayman' profile section with a rating and contribution. At the bottom right, a 'Top rated' table lists the top three users.

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Educational Codeforces Round 25

By [PikMike](#), [history](#), 4 days ago, translation, 

Hello Codeforces!

On July 16, 18:05 MSK Educational Codeforces Round 25 will start.

Series of Educational Rounds continue being held as [Harbour.Space University](#) initiative! You can read the details about the cooperation between [Harbour.Space University](#) and Codeforces in the [blog post](#).

The round will be **unrated** for all users and will be held on extended ACM ICPC rules. After the end of the contest you will have one day to hack any solution you want. You will have access to copy any solution and test it locally.


You will be given **7 problems** and **2 hours** to solve them.

The problems were prepared by Ivan [BledDest](#) Androsov and me.

Good luck to all participants!


UPD: The editorial can be found [here](#).

[Read more »](#)

 Announcement of Educational Codeforces Round 25

→ Pay attention

Before contest
[Codeforces Round #425 \(Div. 2\)](#)
5 days

 Like 143 people like this.

→ Mohamed_Ayman

Rating:
Contribution:

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- [Talks](#)
- [Contests](#)

→ Top rated

| # | User | Rating |
|---|-----------------------------|--------|
| 1 | tourist | 3602 |
| 2 | Petr | 3294 |
| 3 | meiv0viliiv | 3240 |



Problem Set Tab

Any problem has an ID, name, difficulty degree and number of users who solved it.



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[MAIN](#) [ACMSGURU](#) | [PROBLEMS](#) [SUBMIT](#) [STATUS](#) [STANDINGS](#) [CUSTOM TEST](#)

| # | Name | | | |
|-----------------------|---|--|--|--|
| 1294F | Three Paths on a Tree | dfs and similar, dp, trees | | |
| 1294E | Obtain a Permutation | greedy, implementation, math | | |
| 1294D | MEX maximizing | data structures, math | | |
| 1294C | Product of Three Numbers | greedy, math, number theory | | |
| 1294B | Collecting Packages | implementation, sortings | | |
| 1294A | Collecting Coins | math | | |
| 1293B | JOE is on TV! | combinatorics, greedy, math | | |
| 1293A | ConnerR and the A.R.C. Markland-N | binary search, brute force, implementation | | |
| 1292F | Nora's Toy Boxes | bitmasks, combinatorics, dp | | |

→ Pay attention

Before contest

[Educational Codeforces Round 81](#)
(Rated for Div. 2)
3 days

Like 137 people like this. Be the first of your friends.

→ Filter Problems

Difficulty: —

[Add tag](#)

→ Settings

☒ Show tags for unsolved problems



Problem Set Tab

When you select [difficulty degree] the problems will be sorted according to it's difficulty



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HOME TOP CONTESTS GYM PROBLEMSET GROUPS RATING API HELP CALENDAR

MAIN ACMSGURU | PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

| # | Name | | | | |
|-------|----------------------------------|--|--|--|------|
| 1294F | Three Paths on a Tree | dfs and similar, dp, trees | | | 2100 |
| 1294E | Obtain a Permutation | greedy, implementation, math | | | 2000 |
| 1294D | MEX maximizing | data structures, math | | | 1600 |
| 1294C | Product of Three Numbers | greedy, math, number theory | | | 1300 |
| 1294B | Collecting Packages | implementation, sortings | | | 1200 |
| 1294A | Collecting Coins | math | | | 900 |
| 1293B | JOE is on TV! | combinatorics, greedy, math | | | 1000 |
| 1293A | Conner and the A.R.C. Markland-N | binary search, brute force, implementation | | | 1100 |
| 1292F | Nora's Toy Boxes | bitmasks, combinatorics, dp | | | 3400 |

→ Pay attention

Before contest

[Educational Codeforces Round 81](#)
(Rated for Div. 2)
3 days

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→ Filter Problems

Difficulty: —

[Add tag](#)

Apply

→ Settings

☒ Show tags for unsolved problems

Problem Body

Any problem has a body description and input-output constraint and test case(s)

The screenshot shows a web browser at `codeforces.com/problemset/problem/1/A`. The page header includes the Codeforces logo, navigation links (HOME, CONTESTS, GYM, PROBLEMSET, GROUPS, RATING, API, RCC, VK CUP, HFT BATTLE), and user information (Mohamed_Ayman | Logout). The problem title is "A. Theatre Square" with constraints: time limit 1 second, memory limit 256 megabytes, standard input/output. The problem description states: "Theatre Square in the capital city of Berland has a rectangular shape with the size $n \times m$ meters. On the occasion of the city's anniversary, a decision was taken to pave the Square with square granite flagstones. Each flagstone is of the size $a \times a$. What is the least number of flagstones needed to pave the Square? It's allowed to cover the surface larger than the Theatre Square, but the Square has to be covered. It's not allowed to break the flagstones. The sides of flagstones should be parallel to the sides of the Square." The input/output format is specified: "The input contains three positive integer numbers in the first line: n , m and a ($1 \leq n, m, a \leq 10^9$). Write the needed number of flagstones." Examples are provided: input "6 6 4" results in output "4". On the right, there are buttons for "Finished", "Practice", "Virtual participation", and "Submit?". The "Virtual participation" section explains that it is for ACM-ICPC mode and not for solving problems in the archive. The "Submit?" section shows a language dropdown set to "GNU G++14 6.2.0" and a file upload button.

codeforces.com/problemset/problem/1/A

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PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

A. Theatre Square
time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Theatre Square in the capital city of Berland has a rectangular shape with the size $n \times m$ meters. On the occasion of the city's anniversary, a decision was taken to pave the Square with square granite flagstones. Each flagstone is of the size $a \times a$.

What is the least number of flagstones needed to pave the Square? It's allowed to cover the surface larger than the Theatre Square, but the Square has to be covered. It's not allowed to break the flagstones. The sides of flagstones should be parallel to the sides of the Square.

Input
The input contains three positive integer numbers in the first line: n , m and a ($1 \leq n, m, a \leq 10^9$).

Output
Write the needed number of flagstones.

Examples

| input | output |
|-------|--------|
| 6 6 4 | 4 |

Codeforces Beta Round #1
Finished
Practice
★

→ **Virtual participation**

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ **Submit?**

Language: GNU G++14 6.2.0
Choose file: Choose File No file chosen



Submitting Problem

The screenshot shows the Codeforces website interface. The browser's address bar is highlighted with a red box, showing the URL `codeforces.com/problemset/problem/1/A`. The website header includes the Codeforces logo, navigation links (HOME, CONTESTS, GYM, PROBLEMSET, GROUPS, RATING, API, RCC, VK CUP, HFT BATTLE), and a search bar. The 'SUBMIT' button in the navigation bar is also highlighted with a red box. The main content area displays the problem title 'A. Theatre Square' and its constraints: time limit per test: 1 second, memory limit per test: 256 megabytes, input: standard input, and output: standard output. The problem description follows, explaining the task of paving a square area with flagstones. The 'Input' and 'Output' sections provide details on the input format and the expected output. An 'Examples' section shows a sample input and output. On the right side, there are sections for 'Codeforces Beta Round #1' (marked as 'Finished'), 'Virtual participation' (with a 'Start virtual contest' button), and 'Submit?' (with a language dropdown set to 'GNU G++14 6.2.0' and a 'Choose File' button).

codeforces.com/problemset/problem/1/A

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HOME CONTESTS GYM PROBLEMSET GROUPS RATING API RCC VK CUP HFT BATTLE

PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

A. Theatre Square

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Theatre Square in the capital city of Berland has a rectangular shape with the size $n \times m$ meters. On the occasion of the city's anniversary, a decision was taken to pave the Square with square granite flagstones. Each flagstone is of the size $a \times a$.

What is the least number of flagstones needed to pave the Square? It's allowed to cover the surface larger than the Theatre Square, but the Square has to be covered. It's not allowed to break the flagstones. The sides of flagstones should be parallel to the sides of the Square.

Input
The input contains three positive integer numbers in the first line: n , m and a ($1 \leq n, m, a \leq 10^9$).

Output
Write the needed number of flagstones.

Examples

| |
|--------|
| input |
| 6 6 4 |
| output |
| 4 |


Codeforces Beta Round #1
Finished
Practice

→ Virtual participation
Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.
Start virtual contest

→ Submit?
Language: GNU G++14 6.2.0
Choose file: Choose File | No file chosen



Submitting Problem

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HOME CONTESTS GYM **PROBLEMSET** GROUPS RATING API RCC VK CUP HFT BATTLE

PROBLEMS **SUBMIT** STATUS STANDINGS CUSTOM TEST

Submit solution

Codeforces Beta Round #1

Problem: **1A - Theatre Square**

Language: **GNU G++14 6.2.0**

Source code:

1

☐ Switch off editor Tab size: 4

Or choose file: No file chosen

[Pay attention](#)

Before contest
[Codeforces Round #425 \(Div. 2\)](#)
5 days

143 people like this.

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Rating:
Contribution:

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☒ Show tags for unsolved problems

[Last unsolved](#)



Problem Verdict

Your submitted algorithm will be accepted or fail in specific test case



codeforces.com/problemset/status

Apps Facebook Google Drive

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PROBLEMS SUBMIT **STATUS** STANDINGS CUSTOM TEST

Contest status

| # | When | Who | Problem | Lang | Verdict | Time | Memory |
|--------------------------|---------------------|----------------------------------|--|-----------|-------------------------------|---------|----------|
| 28691481 | 2017-07-19 12:06:19 | hank_moody | 158B - Taxi | GNU C++ | Running on test 1 | 0 ms | 0 KB |
| 28691479 | 2017-07-19 12:06:17 | rocky_ | 4A - Watermelon | GNU C++11 | Running on test 1 | 0 ms | 0 KB |
| 28691477 | 2017-07-19 12:06:01 | vjudge3 | 459B - Pashmak and Flowers | GNU C++ | Wrong answer on test 4 | 358 ms | 2800 KB |
| 28691476 | 2017-07-19 12:06:00 | Bjarnestroustrup | 831C - Jury Marks | GNU C++14 | Time limit exceeded on test 1 | 2000 ms | 5000 KB |
| 28691475 | 2017-07-19 12:05:54 | ffbh | 818E - Card Game Again | GNU C++11 | Wrong answer on test 3 | 15 ms | 2700 KB |
| 28691474 | 2017-07-19 12:05:52 | k_k_3799 | 825A - Binary Protocol | GNU C++14 | Wrong answer on test 2 | 0 ms | 1900 KB |
| 28691473 | 2017-07-19 12:05:50 | 1504010611 | 746D - Green and Black Tea | GNU C++11 | Compilation error | 0 ms | 0 KB |
| 28691471 | 2017-07-19 12:05:49 | alaDDin101 | 733A - Grasshopper And the String | GNU C++11 | Running on test 59 | 0 ms | 0 KB |
| 28691470 | 2017-07-19 12:05:47 | vjudge2 | 841B - Vladik and Complicated Book | GNU C++ | Wrong answer on test 1 | 15 ms | 1900 KB |
| 28691469 | 2017-07-19 12:05:44 | DeKode | 158A - Next Round | GNU C++14 | Wrong answer on test 6 | 30 ms | 1900 KB |
| 28691467 | 2017-07-19 12:05:42 | vjudge1 | 50C - Happy Farm 5 | GNU C++ | Accepted | 124 ms | 3400 KB |
| 28691466 | 2017-07-19 12:05:38 | vjudge3 | 291B - Command Line Arguments | GNU C++ | Wrong answer on test 5 | 15 ms | 2900 KB |
| 28691463 | 2017-07-19 12:05:33 | vjudge1 | 746C - Tram | GNU C++ | Accepted | 15 ms | 2100 KB |
| 28691460 | 2017-07-19 12:05:25 | vivekgupta | 118D - Caesar's Legions | GNU C++14 | Accepted | 30 ms | 2000 KB |
| 28691457 | 2017-07-19 12:05:18 | HopeDawn | 831A - Unimodal Array | GNU C++14 | Wrong answer on test 10 | 15 ms | 1800 KB |
| 28691455 | 2017-07-19 12:05:17 | ivashchenko_a | 734A - Anton and Danik | Java 8 | Accepted | 139 ms | 20500 KB |
| 28691454 | 2017-07-19 12:05:16 | naimur978 | 732A - Buy a Shovel | GNU C++14 | Accepted | 15 ms | 1900 KB |

History of Problem Submission



codeforces.com/problemset/problem/1/A

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PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

A. Theatre Square

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Theatre Square in the capital city of Berland has a rectangular shape with the size $n \times m$ meters. On the occasion of the city's anniversary, a decision was taken to pave the Square with square granite flagstones. Each flagstone is of the size $a \times a$.

What is the least number of flagstones needed to pave the Square? It's allowed to cover the surface larger than the Theatre Square, but the Square has to be covered. It's not allowed to break the flagstones. The sides of flagstones should be parallel to the sides of the Square.

Input
The input contains three positive integer numbers in the first line: n , m and a ($1 \leq n, m, a \leq 10^9$).

Output
Write the needed number of flagstones.

Examples

| input |
|-------|
| 6 6 4 |

| output |
|--------|
| 4 |

Codeforces Beta Round #1

Finished
Practice

Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

Last submissions

| Submission | Time | Verdict |
|------------|-------------------|-------------------------|
| 26635907 | Apr/24/2017 11:25 | Accepted |
| 7547560 | Aug/22/2014 03:03 | Accepted |
| 7547556 | Aug/22/2014 03:02 | Wrong answer on test 16 |
| 5707088 | Jan/17/2014 05:51 | Accepted |
| 5707047 | Jan/17/2014 05:37 | Accepted |
| 5707044 | Jan/17/2014 05:36 | Wrong answer on test 16 |
| 5707038 | Jan/17/2014 05:35 | Wrong answer on test 14 |
| 5706970 | Jan/17/2014 05:16 | Wrong answer on test 16 |
| 5706914 | Jan/17/2014 05:01 | Wrong answer on test 16 |
| 5706844 | Jan/17/2014 04:39 | Wrong answer on test 1 |

Any Problem has a list of your submissions with it's judge.

- Accepted
- Wrong Answer
- Time Limit Exceeded
- Memory Limit Exceeded
- Compilation error

Lecture Agenda

- ✓ Section 1: Codeforces Online Judge
- ✓ Section 2: How to Create an Account
- ✓ Section 3: How to Solve a Problem
- Section 4: How to Learn from Other Solutions**
- Section 5: How to Compete in Contest
- Section 6: How to Learn from Contest Tutorial



How to Learn from Other Solutions

1- Go To Round Problems

2- Go To Status Tab

3- Put You Criteria to Filter Submissions

4- Applying Your Filter

5- Show Your Target Solution



Round Number in Problem Body

Any problem has a round number at the top of right side, click it



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HOME TOP CONTESTS GYM PROBLEMSET GROUPS RATING API HELP VK CUP CALENDAR 8 YEARS!

PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

A. Watermelon

time limit per test: 1 second
memory limit per test: 64 megabytes
input: standard input
output: standard output

One hot summer day Pete and his friend Billy decided to buy a watermelon. They chose the biggest and the ripest one, in their opinion. After that the watermelon was weighed, and the scales showed w kilos. They rushed home, dying of thirst, and decided to divide the berry, however they faced a hard problem.

Pete and Billy are great fans of even numbers, that's why they want to divide the watermelon in such a way that each of the two parts weighs even number of kilos, at the same time it is not obligatory that the parts are equal. The boys are extremely tired and want to start their meal as soon as possible, that's why you should help them and find out, if they can divide the watermelon in the way they want. For sure, each of them should get a part of positive weight.

Input

The first (and the only) input line contains integer number w ($1 \leq w \leq 100$) — the weight of the watermelon bought by the boys.

Output

Print `YES`, if the boys can divide the watermelon into two parts, each of them weighing even number of kilos; and `NO` in the opposite case.

Examples

| | |
|--------|------|
| input | Copy |
| 8 | |
| output | Copy |
| YES | |

Note

For example, the boys can divide the watermelon into two parts of 2 and 6 kilos respectively (another variant — two parts of 4 and 4 kilos).

Codeforces Beta Round #4 (Div. 2 Only)

Finished

Practice



→ Attention

Package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then value 800 ms will be displayed and used to determine the verdict.

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or



Problems of The Round

Select **STATUS** tab



|
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HOME TOP CONTESTS GYM PROBLEMSET GROUPS RATING API HELP VK CUP CALENDAR 8 YEARS!

PROBLEMS SUBMIT CODE MY SUBMISSIONS **STATUS** STANDINGS CUSTOM INVOCATION

Problems

| # | Name | | | |
|---|--|---------------------------------------|--|-----------------------|
| A | Watermelon ¹ | standard input/output 1 s, 64 MB | | x3401 |
| B | Before an Exam | standard input/output 0.5 s, 64 MB | | x1395 |
| C | Registration System ¹ | standard input/output 5 s, 64 MB | | x1398 |
| D | Mysterious Present | standard input/output 1 s, 64 MB | | x698 |

Codeforces Beta Round #4 (Div. 2 Only)

Finished

Practice



→ Virtual participation

Virtual contest is a way to take part in past



Status of The Round

This page will show all results of round for all languages and all verdicts and all round problems



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PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS STANDINGS CUSTOM INVOCATION

Status filter is used, click [here](#) to reset

| # | When | Who | Problem | Lang | Verdict | Time | Memory |
|--------------------------|---------------------|--------------------|--------------------------------|-----------|------------------------|--------|---------|
| 41932551 | 2018-08-21 14:05:35 | luogu_bot2 | A - Watermelon | GNU C++ | Accepted | 62 ms | 0 KB |
| 41932498 | 2018-08-21 14:03:25 | luogu_bot4 | A - Watermelon | GNU C++ | Wrong answer on test 5 | 60 ms | 0 KB |
| 41932252 | 2018-08-21 13:53:17 | bharath_kns | A - Watermelon | GNU C | Accepted | 62 ms | 0 KB |
| 41932248 | 2018-08-21 13:53:16 | struggling_student | A - Watermelon | Java 8 | Accepted | 310 ms | 3600 KB |
| 41932232 | 2018-08-21 13:52:28 | bharath_kns | A - Watermelon | GNU C | Compilation error | 0 ms | 0 KB |
| 41932179 | 2018-08-21 13:50:39 | bharath_kns | A - Watermelon | GNU C | Wrong answer on test 5 | 30 ms | 0 KB |
| 41932110 | 2018-08-21 13:47:51 | Thyroid | A - Watermelon | GNU C++ | Accepted | 60 ms | 0 KB |
| 41932087 | 2018-08-21 13:46:58 | Thyroid | A - Watermelon | GNU C++ | Wrong answer on test 5 | 62 ms | 0 KB |
| 41932081 | 2018-08-21 13:46:48 | bharath_kns | A - Watermelon | GNU C | Wrong answer on test 5 | 30 ms | 0 KB |
| 41931956 | 2018-08-21 13:42:45 | Thyroid | A - Watermelon | GNU C++ | Wrong answer on test 5 | 30 ms | 0 KB |
| 41931677 | 2018-08-21 13:32:46 | eduardonunes2525 | A - Watermelon | GNU C++11 | Accepted | 60 ms | 0 KB |
| 41931532 | 2018-08-21 13:27:48 | eduardonunes2525 | A - Watermelon | GNU C++11 | Wrong answer on test 2 | 30 ms | 0 KB |
| 41931369 | 2018-08-21 13:22:49 | eduardonunes2525 | A - Watermelon | GNU C++11 | Wrong answer on test 2 | 30 ms | 0 KB |

Codeforces Beta Round #4 (Div. 2 Only)

Finished

Practice



→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.



Filtration of The Round Status

You can filter results for specific problem and specific language and specific verdict

| | | | | | | | |
|--------------------------|---------------------------------|------------------|---|-----------|-------------------------------|---------|----------|
| 41932179 | 13:52:48 2018-08-21 13:50:39 | bharath_kns | A - Watermelon | GNU C | Wrong answer on test 5 | 30 ms | 0 KB |
| 41932110 | 2018-08-21 13:47:51 | Thyroid | A - Watermelon | GNU C++ | Accepted | 60 ms | 0 KB |
| 41932087 | 2018-08-21 13:46:58 | Thyroid | A - Watermelon | GNU C++ | Wrong answer on test 5 | 62 ms | 0 KB |
| 41932081 | 2018-08-21 13:46:48 | bharath_kns | A - Watermelon | GNU C | Wrong answer on test 5 | 30 ms | 0 KB |
| 41931956 | 2018-08-21 13:42:45 | Thyroid | A - Watermelon | GNU C++ | Wrong answer on test 5 | 30 ms | 0 KB |
| 41931677 | 2018-08-21 13:32:46 | eduardonunes2525 | A - Watermelon | GNU C++11 | Accepted | 60 ms | 0 KB |
| 41931532 | 2018-08-21 13:27:48 | eduardonunes2525 | A - Watermelon | GNU C++11 | Wrong answer on test 2 | 30 ms | 0 KB |
| 41931369 | 2018-08-21 13:22:49 | eduardonunes2525 | A - Watermelon | GNU C++11 | Wrong answer on test 2 | 30 ms | 0 KB |
| 41930949 | 2018-08-21 13:09:52 | MayFloweryy | A - Watermelon | GNU C++14 | Wrong answer on test 5 | 30 ms | 0 KB |
| 41930872 | 2018-08-21 13:07:08 | MayFloweryy | A - Watermelon | GNU C++14 | Accepted | 30 ms | 0 KB |
| 41930580 | 2018-08-21 12:57:52 | bqx | C - Registration System | GNU C++11 | Accepted | 1682 ms | 800 KB |
| 41930538 | 2018-08-21 12:55:45 | luogu_bot2 | A - Watermelon | GNU C++ | Accepted | 62 ms | 0 KB |
| 41929696 | 2018-08-21 12:23:54 | FAYJUL | C - Registration System | GNU C++11 | Time limit exceeded on test 1 | 5000 ms | 14100 KB |
| 41929373 | 2018-08-21 12:12:54 | CtrlCV | A - Watermelon | GNU C++17 | Accepted | 62 ms | 0 KB |
| 41929198 | 2018-08-21 12:05:50 | rubiks_spiedy | A - Watermelon | GNU C++14 | Accepted | 62 ms | 0 KB |
| 41929158 | 2018-08-21 12:04:24 | rubiks_spiedy | A - Watermelon | GNU C++14 | Compilation error | 0 ms | 0 KB |
| 41929116 | 2018-08-21 12:03:06 | jarvis307 | A - Watermelon | Java 8 | Accepted | 248 ms | 3600 KB |

on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Status filter

Problem: [A - Watermelon](#)

Verdict: Accepted

Language: Python 3

Test: Not used

Apply Reset

→ Contest materials



Applying Filtration

After applying a filter results will be like that



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PROBLEMS SUBMIT CODE MY SUBMISSIONS **STATUS** STANDINGS CUSTOM INVOCATION

Status filter is used, click [here](#) to reset

| Contest status | # | When | Who | Problem | Lang | Verdict | Time | Memory |
|----------------|--------------------------|---------------------|-------------------------|--------------------------------|----------|----------|--------|--------|
| | 41923289 | 2018-08-21 09:01:24 | artem3605 | A - Watermelon | Python 3 | Accepted | 218 ms | 0 KB |
| | 41912407 | 2018-08-20 21:48:49 | rajpal54 | A - Watermelon | Python 3 | Accepted | 216 ms | 0 KB |
| | 41912024 | 2018-08-20 21:31:41 | J_Allgood | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |
| | 41911919 | 2018-08-20 21:27:54 | MohamedAbnaby | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |
| | 41908124 | 2018-08-20 18:48:22 | Legends_of_superflarrow | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |
| | 41907503 | 2018-08-20 18:28:23 | subasishkar | A - Watermelon | Python 3 | Accepted | 218 ms | 0 KB |
| | 41901193 | 2018-08-20 15:14:04 | egor2006 | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |
| | 41899692 | 2018-08-20 14:32:12 | waska.chaduneli | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |
| | 41889880 | 2018-08-20 09:32:41 | EricLiam | A - Watermelon | Python 3 | Accepted | 216 ms | 0 KB |
| | 41879885 | 2018-08-20 03:43:53 | onivy | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |
| | 41878841 | 2018-08-20 02:41:03 | petitfox | A - Watermelon | Python 3 | Accepted | 218 ms | 0 KB |
| | 41877273 | 2018-08-20 00:44:52 | Bedo_Acm | A - Watermelon | Python 3 | Accepted | 218 ms | 0 KB |
| | 41875138 | 2018-08-19 23:24:50 | rachitkawar | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |
| | 41870473 | 2018-08-19 21:17:30 | lxjuly | A - Watermelon | Python 3 | Accepted | 218 ms | 0 KB |
| | 41827882 | 2018-08-19 16:02:18 | cheekypopcorn | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |
| | 41827877 | 2018-08-19 16:02:09 | hehezhou | A - Watermelon | Python 3 | Accepted | 218 ms | 0 KB |
| | 41827309 | 2018-08-19 15:44:09 | Beni21 | A - Watermelon | Python 3 | Accepted | 216 ms | 0 KB |

Codeforces Beta Round #4 (Div. 2 Only)

Finished

Practice



→ Virtual participation

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Start virtual contest

→ Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

This filter about:

Verdict : Accepted

Problem : A

Language : Python 3



Solutions of The Others



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PROBLEMS SUBMIT CODE MY SUBMISSIONS **STATUS** STANDINGS CUSTOM INVOCATION

Status filter is used, click [here](#) to reset

Contest status:

| # | When | Who | Problem | Lang | Verdict | Time | Memory |
|--------------------------|---------------------|-------------------------|--------------------------------|----------|----------|--------|--------|
| 41923289 | 2018-08-21 09:01:24 | artem3605 | A - Watermelon | Python 3 | Accepted | 218 ms | 0 KB |
| 41912407 | 2018-08-20 21:48:49 | rajpal54 | A - Watermelon | Python 3 | Accepted | 216 ms | 0 KB |
| 41912024 | 2018-08-20 21:31:41 | J_Allgood | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |
| 41911919 | 2018-08-20 21:27:54 | MohamedAbnaby | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |
| 41908124 | 2018-08-20 18:48:22 | Legends_of_superflarrow | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |
| 41907503 | 2018-08-20 18:28:23 | subasishkar | A - Watermelon | Python 3 | Accepted | 218 ms | 0 KB |
| 41901193 | 2018-08-20 15:14:04 | egor2006 | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |
| 41899692 | 2018-08-20 14:32:12 | waska.chaduneli | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |
| 41889880 | 2018-08-20 09:32:41 | EricLiam | A - Watermelon | Python 3 | Accepted | 216 ms | 0 KB |
| 41879885 | 2018-08-20 03:43:53 | oniwy | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |
| 41878841 | 2018-08-20 02:41:03 | petitfox | A - Watermelon | Python 3 | Accepted | 218 ms | 0 KB |
| 41877273 | 2018-08-20 00:44:52 | Bedo_Acm | A - Watermelon | Python 3 | Accepted | 218 ms | 0 KB |
| 41875138 | 2018-08-19 23:24:50 | rachitkawar | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |

Codeforces Beta Round #4 (Div. 2 Only)

Finished

Practice



→ Virtual participation


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Start virtual contest



Show Solutions of The Others





CODEFORCES^β
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PROBLEMS

SUBMIT

STATUS

Status filter is us

Contest status

#

41923289

41912407

41912024

41911919

41908124

41907503

41901193

41899692

41889880

41879885

41878841

41877273

41875138

41870473

41827882

41827877

41827309

41823935

41822042

By egor2006, contest: Codeforces Beta Round #4 (Div. 2 Only), problem: (A) Watermelon, **Accepted**, #

```
w = int(input())
w2 = w % 2
if w >= 4 and w2 == 0:
    print('YES')
else:
    print('NO')
```

→Judgement Protocol

Test: #1, time: 216 ms., memory: 0 KB, exit code: 0, checker exit code: 0, verdict: OK

Input

8

Output

YES

Answer

YES

Checker Log

ok answer is YES

Test: #2, time: 218 ms., memory: 0 KB, exit code: 0, checker exit code: 0, verdict: OK

Input

5

Output

NO

Answer

NO

Checker Log

ok answer is NO

Test: #3, time: 186 ms., memory: 0 KB, exit code: 0, checker exit code: 0, verdict: OK

Input

| | | | | | | |
|---------------------|-------------|--------------------------------|----------|----------|--------|------|
| 2018-08-19 16:02:09 | hehezhou | A - Watermelon | Python 3 | Accepted | 218 ms | 0 KB |
| 2018-08-19 15:44:09 | Beni21 | A - Watermelon | Python 3 | Accepted | 216 ms | 0 KB |
| 2018-08-19 14:03:01 | windyknight | A - Watermelon | Python 3 | Accepted | 218 ms | 0 KB |
| 2018-08-19 13:06:46 | practice. | A - Watermelon | Python 3 | Accepted | 248 ms | 0 KB |

problems unofficially. Results can be found in the contest status and in the bottom of standings.

→ Clone Contest to Mashup

Lecture Agenda

- ✓ Section 1: Codeforces Online Judge
- ✓ Section 2: How to Create an Account
- ✓ Section 3: How to Solve a Problem
- ✓ Section 4: How to Learn from Other Solutions
- Section 5: How to Compete in Contest**
- Section 6: How to Learn from Contest Tutorial



Register in Previous Contest

Select **CONTEST** Tab



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Current or upcoming contests

| Name | Writers | Start | Length | | |
|---|---------|---|---------|-------------------------|------------------------------|
| Educational Codeforces Round 81 (Rated for Div. 2) | | Jan/29/2020 16:35^{UTC+2} | 02:00 | Before start 4 days | Before registration 25:47:01 |
| Codeforces Round #616 (Div. 1) | | Feb/02/2020 16:05^{UTC+2} | 02:00 | Before start 8 days | Before registration 5 days |
| Codeforces Round #616 (Div. 2) | | Feb/02/2020 16:05^{UTC+2} | 02:00 | Before start 8 days | Before registration 5 days |
| Codeforces Round #617 (Div. 3) | | Feb/04/2020 16:35^{UTC+2} | 02:00 | Before start 10 days | Before registration 7 days |
| Kotlin Heroes: Practice 3 | | Feb/20/2020 14:35^{UTC+2} | 7:00:00 | Before start 4 weeks | Before registration 4 weeks |
| Kotlin Heroes: Episode 3 | | Feb/27/2020 15:35^{UTC+2} | 02:30 | Before start 5 weeks | Before registration 00:52:00 |



Register in New Contest

Register The Contest from [Register now >>](#) link



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Current or upcoming contests

| Name | Writers | Start | Length | | |
|---|---------|---|---------|----------------------|------------------------------|
| Educational Codeforces Round 81 (Rated for Div. 2) | | Jan/29/2020 16:35 UTC+3 | 02:00 | Before start 4 days | Before registration 25:31:22 |
| Codeforces Round #616 (Div. 1) | | Feb/02/2020 16:05 UTC+3 | 02:00 | Before start 8 days | Before registration 5 days |
| Codeforces Round #616 (Div. 2) | | Feb/02/2020 16:05 UTC+3 | 02:00 | Before start 8 days | Before registration 5 days |
| Codeforces Round #617 (Div. 3) | | Feb/04/2020 16:35 UTC+3 | 02:00 | Before start 10 days | Before registration 7 days |
| Kotlin Heroes: Practice 3 | | Feb/20/2020 14:35 UTC+3 | 7:00:00 | Before start 4 weeks | Before registration 4 weeks |
| Kotlin Heroes: Episode 3 | | Feb/27/2020 15:35 UTC+2 | 02:30 | Before start 5 weeks | Before registration 00:36:22 |

→ Pay attention

Before contest
[Educational Codeforces Round 81](#)
(Rated for Div. 2)

00:49:39

[Register now >>](#)



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Contest history

Past contests

| Name | Writers | Start | Length | | |
|--|-------------------------|----------------------------|--------|---|------------------------|
| Codeforces Round #615 (Div. 3) Enter > Virtual participation > | MikeMirzayanov vovuh | Jan/22/2020 16:35 UTC+2 | 02:10 | Final standings Solved: 4 out of 6 | x17661 |



Register in New Contest

Register The Contest from [Register](#) link

Registration for the contest

Codeforces Round #455 (Div. 2)

Terms of
agreement:

The registration confirms that you:

- * have read the contest rules by the links <http://codeforces.com/blog/entry/456> and <http://codeforces.com/blog/entry/4088>
- * will not violate the rules described on <http://codeforces.com/blog/entry/456> and/or <http://codeforces.com/blog/entry/4088>
- * will not communicate with other participants, share ideas of solutions and hacks
- * will not use third-party code, except stated in <http://codeforces.com/blog/entry/8790>
- * will not attempt to deliberately destabilize the testing process and try to hack the contest system in any form
- * will not use multiple accounts and will take part in the contest using your personal and the single account.

Take part: ☒ as individual participant

Register



Register in New Contest



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Educational Codeforces Round 81 (Rated for Div. 2)

| Name | Writers | Start | Length | | |
|--|---------|--|--------|---------------------|------------------------------|
| Educational Codeforces Round 81 (Rated for Div. 2) | | Jan/29/2020 16:35UTC+3 | 02:00 | Before start 4 days | Before registration 25:51:26 |

Like 133 people like this. Be the first of your friends.

Tweet

* To view the complete list, click [the link](#).

Before the contest
4 days

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The only programming contests Web 2.0 platform
Server time: Jan/25/2020 21:02:31^{UTC+2} (e2).
Desktop version, switch to [mobile version](#).
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Supported by



Register in Previous Contest

You Can Compete in Previous Contests

Contest history

Past contests

| Name | Writers | Start | Length | | |
|--|----------------------------------|---------------------------------------|--------|---|------------------------|
| Codeforces Round #615 (Div. 3) Enter » Virtual participation » | MikeMirzayanov vovuh | Jan/22/2020 16:35 ^{UTC+2} | 02:10 | Final standings Solved: 4 out of 6 | x17661 |
| Codeforces Round #614 (Div. 1) Enter » Virtual participation » | Akikaze low_ xuanquang1999 | Jan/19/2020 15:35 ^{UTC+2} | 02:00 | Final standings | x1391 |
| Codeforces Round #614 (Div. 2) Enter » Virtual participation » | Akikaze low_ xuanquang1999 | Jan/19/2020 15:35 ^{UTC+2} | 02:00 | Final standings | x13746 |



Lecture Agenda

- ✓ Section 1: Codeforces Online Judge
- ✓ Section 2: How to Create an Account
- ✓ Section 3: How to Solve a Problem
- ✓ Section 4: How to Learn from Other Solutions
- ✓ Section 5: How to Compete in Contest

Section 6: How to Learn from Contest Tutorial



How to Learn from Contest Tutorial



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[PROBLEMS](#) [SUBMIT CODE](#) [MY SUBMISSIONS](#) [STATUS](#) [HACKS](#) [STANDINGS](#) [CUSTOM INVOCATION](#)

Problems

| # | Name | | | |
|-------------------|--|--------------------------------------|--|------------------------|
| A | Collecting Coins | standard input/output 2 s, 256 MB | | x10041 |
| B | Collecting Packages | standard input/output 1 s, 256 MB | | x6953 |
| C | Product of Three Numbers | standard input/output 2 s, 256 MB | | x5775 |
| D | MEX maximizing | standard input/output 3 s, 256 MB | | x2271 |
| E | Obtain a Permutation | standard input/output 2 s, 256 MB | | x626 |
| F | Three Paths on a Tree | standard input/output 2 s, 256 MB | | x515 |

[Complete problemset](#)

[Ask a question](#)

Questions about problems

| # | Party | When | Question | Answer |
|---|-------|------------------------|--------------|--|
| | | 2020-01-22 19:19:26 | Announcement | General announcement ***** The round extended by 10 minutes. |

Codeforces Round #615 (Div. 3)

Finished

Practice



→ Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Contest materials



- [Announcement \(en\)](#)
- [Tutorial \(en\)](#)



How to Learn from Contest Tutorial

- In Tutorial Section for each contest in codeforces there is a blog which explain the idea of the problems in this round with a solution example.

Codeforces Round #615 (Div. 3) Editorial

By [vovuh](#), [history](#), 2 days ago, , 

Thanks to [Rox](#) and [_overrated_](#) for help with problem ideas and preparation!

[1294A - Collecting Coins](#)

Idea: [MikeMirzayanov](#)

[Tutorial](#)

1294A - Collecting Coins

Suppose $a \leq b \leq c$. If it isn't true then let's rearrange our variables. Then we need at least $2c - b - a$ coins to make a , b and c equal. So if $n < 2c - b - a$ then the answer is "NO". Otherwise, the answer is "YES" if the number $n - (2c - b - a)$ is divisible by 3. This is true because after making a , b and c equal we need to distribute all remaining candies between three sisters.

[Solution](#)

[1294B - Collecting Packages](#)

Idea: [MikeMirzayanov](#)

[Tutorial](#)

1294B - Collecting Packages

It is obvious that if there is a pair of points (x_i, y_i) and (x_j, y_j) such that $x_i < x_j$ and $y_i > y_j$ then the answer is "NO". It means that if the answer is "YES" then there is some ordering of points such that $x_{i_1} \leq x_{i_2} \leq \dots \leq x_{i_n}$ and $y_{i_1} \leq y_{i_2} \leq \dots \leq y_{i_n}$ because we can only move right or up. But what is this ordering? it is just sorted order of points (firstly by x_i then by y_i).

So we can sort all points, check if this ordering is valid and traverse among all these points. For each k from 2 to n firstly do $x_{i_k} - x_{i_{k-1}}$ moves to the right then do $y_{i_k} - y_{i_{k-1}}$ moves to the up (because this order minimizing the answer lexicographically).

Time complexity: $O(n \log n)$ or $O(n^2)$.

[Solution](#)



Lecture Agenda

- ✓ Section 1: Codeforces Online Judge
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- ✓ Section 3: How to Solve a Problem
- ✓ Section 4: How to Learn from Other Solutions
- ✓ Section 5: How to Compete in Contest
- ✓ Section 6: How to Learn from Contest Tutorial





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