



Codeforces Online Judge

Prepared by: Mohamed Ayman

Algorithm Software Engineer and Deep Learning Researcher at Valeo

Research and Teaching Assistant at The American University in Cairo (AUC)

[Spring 2021]



sw.eng.MohamedAyman@gmail.com



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.

The screenshot shows the Codeforces website interface. At the top, there's a navigation bar with links like HOME, TOP, CONTESTS, GYM, PROBLEMS, GROUPS, RATING, API, HELP, and CALENDAR. The main content area features a contest announcement titled "36th Petrozavodsk Programming Camp, Winter 2019" by user SoshinRoman, 7 days ago. The text describes the camp held from January 29 to February 08 at Petrozavodsk State University, mentioning 53 teams from 33 universities and 10 countries. Below the text is a photo of the camp winners on a stage. To the right, there's a sidebar with "Pay attention" section listing upcoming contests like "Before contest Codeforces Round #543 (Div. 1, based on Technocup 2019 Final Round)". At the bottom, there's a social media share bar and a comment section.

Codeforces Online Judge



Mohamed Ayman | [Logout](#)

[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

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

→ 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

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 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

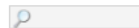


Select Register from this Link: codeforces.com





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

[HOME](#) [TOP](#) [CONTESTS](#) [GYM](#) [PROBLEMSET](#) [GROUPS](#) [RATING](#) [API](#) [HELP](#) [FORETHOUGHT FUTURE CUP 🏆](#) [CALENDAR](#)



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



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

Registration Form

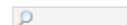


Fill your data and you will receive a verification mail



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

[HOME](#) [TOP](#) [CONTESTS](#) [GYM](#) [PROBLEMSET](#) [GROUPS](#) [RATING](#) [API](#) [HELP](#) [FORETHOUGHT FUTURE CUP](#) [CALENDAR](#)



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



Mohamed_Ayman | [Logout](#)

[HOME](#) [TOP](#) [CONTESTS](#) [GYM](#) [PROBLEMSET](#) [GROUPS](#) [RATING](#) [EDU](#) [API](#) [CALENDAR](#) [HELP](#)

[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: 272 users

[My friends](#)

[Change settings](#)

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

Last visit: **online now**

Registered: 7 years ago

[Blog entries \(0\)](#), [comments](#)

[Write new entry](#)

[View my talks](#)



[Change photo](#)

→ **Pay attention**

Before contest
[Educational Codeforces Round 108](#)
(Rated for Div. 2)
5 days

Like 81 people like this. Be the first of your friends

→ **Mohamed_Ayman**

Rating: **1614**
 Contribution: 0

- [Settings](#)
- [Blog](#)
- [Teams](#)
- [Submissions](#)
- [Groups](#)
- [Talks](#)
- [Contests](#)



Mohamed_Ayman

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

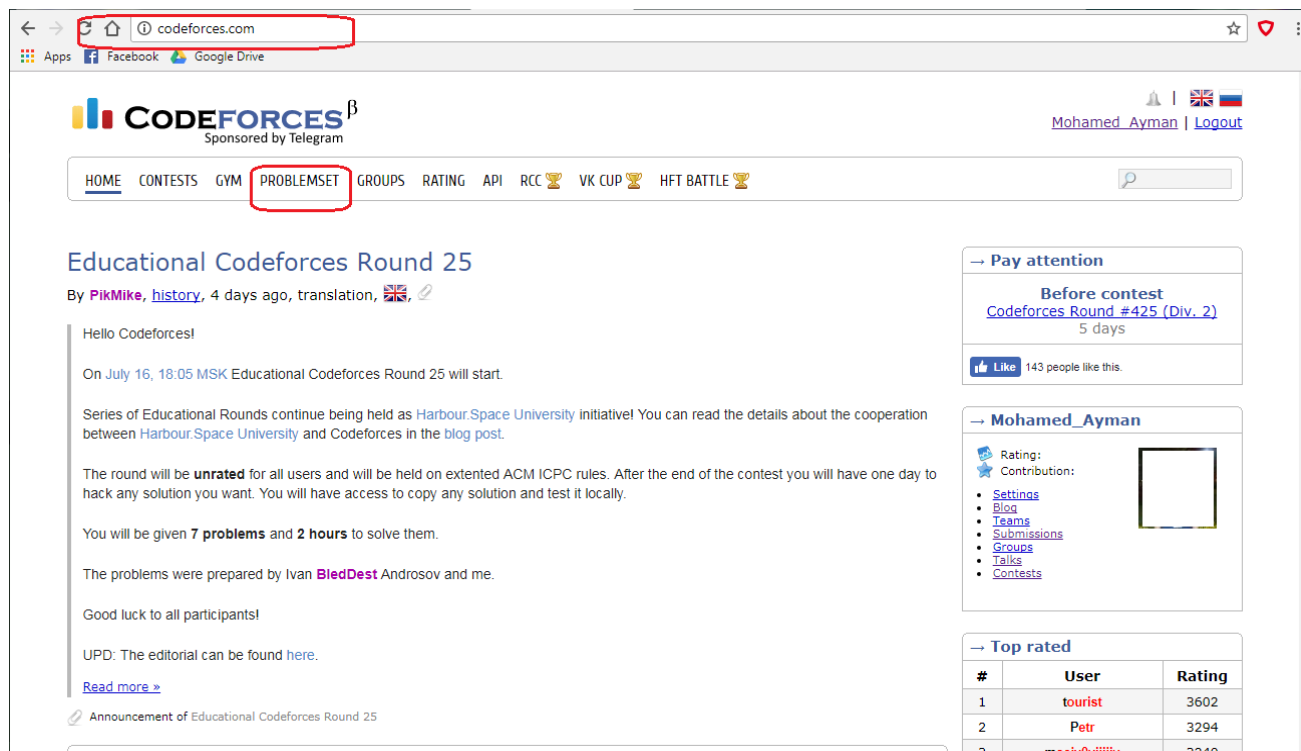
3- Implement an Efficient & Correct Algorithm

4- Test Your Solution

5- Submit Your Solution

6- Go to Step 1 Till You Get Accepted

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



The screenshot shows the Codeforces website interface. The browser's address bar displays 'codeforces.com'. The navigation bar at the top 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 features an announcement for 'Educational Codeforces Round 25' by user 'PikMike'. The announcement text includes details about the round's timing, rules, and the number of problems. On the right side, there are sections for 'Pay attention' (Before contest Codeforces Round #425) and 'Mohamed_Ayman' (a user profile with a rating and contribution list). At the bottom right, a 'Top rated' table lists the top three users.

#	User	Rating
1	tourist	3602
2	Petr	3294
3	meiv0viiiiv	3240

Problem Set Tab



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



Mohamed Ayman | Logout

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 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	ConnerR 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

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

→ Filter Problems

Difficulty: —
[Add tag](#)

Apply

→ Settings

☒ Show tags for unsolved problems

Problem Set Tab

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

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	ConnerR 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

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

→ Filter Problems

Difficulty: —

[Add tag](#)

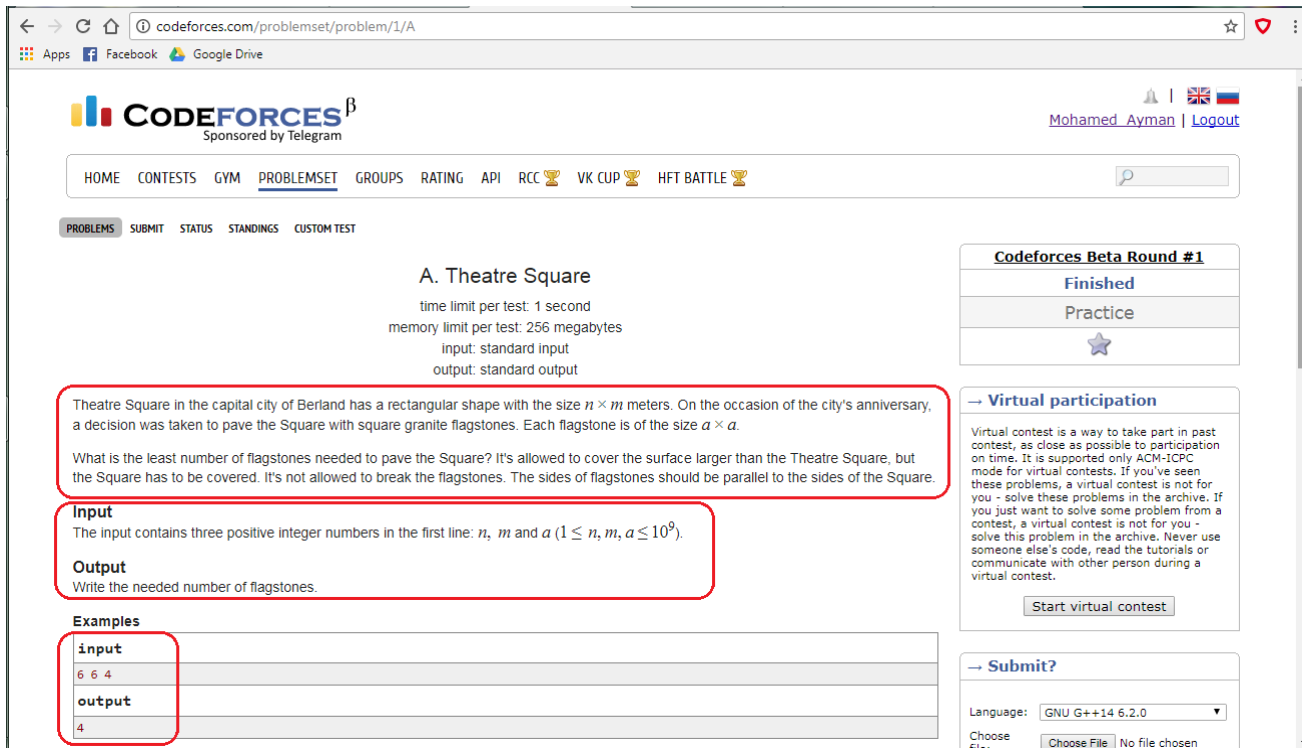
Apply

→ 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 the Codeforces website interface for a problem titled "A. Theatre Square". The page includes a navigation bar with links to HOME, CONTESTS, GYM, PROBLEMSET, GROUPS, RATING, API, RCC, VK CUP, and HFT BATTLE. The user is logged in as "Mohamed_Ayman". 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 and output constraints are also shown. The input consists of three positive integers n , m , and a ($1 \leq n, m, a \leq 10^9$). The output is the needed number of flagstones. An example is provided: input "6 6 4" results in output "4". On the right side, there are buttons for "Finished", "Practice", and "Virtual participation". The "Virtual participation" section explains that it is a way to take part in past contests, 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. There is a "Start virtual contest" button. Below that, there is a "Submit?" section with a language dropdown set to "GNU G++14 6.2.0" and a "Choose File" button.

codeforces.com/problemset/problem/1/A

CODEFORCES^β
Sponsored by Telegram

Mohamed_Ayman | Logout

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	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



codeforces.com/problemset/problem/1/A

Apps Facebook Google Drive

CODEFORCES^β

Sponsored by Telegram

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



Sponsored by Telegram

Mohamed_Ayman | [Logout](#)

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:

Choose File

 No file chosen

Submit

Pay attention

Before contest

[Codeforces Round #425 \(Div. 2\)](#)

5 days

Like 143 people like this.

Mohamed_Ayman

Rating: Contribution:

Settings

Blog

Teams

Submissions

Groups

Talks

Contests

Settings

☒ 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

CODEFORCES^β
Sponsored by Telegram

Mohamed_Ayman | Logout

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

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

CODEFORCES^β
Sponsored by Telegram

Mohamed Ayman | Logout

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

→ 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 Your 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



Mohamed Ayman | Logout

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

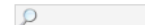


Select **STATUS** tab



[Mohamed_Ayman](#) | [Logout](#)

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



Mohamed Ayman | [Logout](#)

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

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

Appling Filtration

After applying a filter results will be like that



Mohamed_Ayman | [Logout](#)

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

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	rachitkavar	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

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.

This filter about:

Verdict : Accepted

Problem : A

Language : Python 3

Solutions of The Others



Mohamed Ayman | Logout

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



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

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

Show Solutions of The Others





CODEFORCES^β
Sponsored by Telegram

HOME

TOP

PROBLEMS

SUBMIT

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

→ 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



HOME TOP **CONTESTS** GYM PROBLEMSET GROUPS RATING API HELP CALENDAR

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

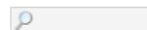
Register in New Contest

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



[Mohamed Ayman](#) | [Logout](#)

[HOME](#) [TOP](#) [CONTESTS](#) [GYM](#) [PROBLEMSET](#) [GROUPS](#) [RATING](#) [API](#) [HELP](#) [CALENDAR](#)



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 >>](#)



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

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



Mohamed Ayman | Logout

HOME TOP CONTESTS GYM PROBLEMSET GROUPS RATING API HELP CALENDAR



Educational Codeforces Round 81 (Rated for Div. 2)

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 25:51:26

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

[Codeforces](#) (c) Copyright 2010-2020 Mike Mirzayanov
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](#).
[Privacy Policy](#)

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



Mohamed_Ayman | [Logout](#)

[HOME](#) [TOP](#) [CONTESTS](#) [GYM](#) [PROBLEMSET](#) [GROUPS](#) [RATING](#) [API](#) [HELP](#) [CALENDAR](#)

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

Problems

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

[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
- ✓ 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





DO
MORE.