

# Codeforces Online Judge

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spring 2020

**Valeo**



THE AMERICAN  
UNIVERSITY IN CAIRO



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[github.com/cs-MohamedAyman](https://github.com/cs-MohamedAyman)



[codeforces.com/profile/Mohamed\\_Ayman](https://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

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

→ 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**

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



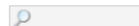
# Codeforces Registration

Select Register from this Link: [codeforces.com](https://codeforces.com)





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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.

<a href="#">scott_wu</a>	<a href="#">neal</a>	<a href="#">ACRush</a>	<a href="#">Fdg</a>	<a href="#">Ra16bit</a>
<a href="#">Kenny_HORROR</a>	<a href="#">liymbear</a>	<a href="#">li931110</a>	<a href="#">xiaowuc1</a>	<a href="#">Suzukaze</a>
<a href="#">yzyz</a>	<a href="#">stevenkplus</a>	<a href="#">pmnox</a>	<a href="#">OpalDshawn</a>	<a href="#">NEU20133823</a>
<a href="#">tap_tapii</a>	<a href="#">Svlad_Cjelli</a>	<a href="#">Emiso</a>	<a href="#">davidberard</a>	<a href="#">gojira</a>
<a href="#">dinosaurs</a>	<a href="#">batyrkhan14</a>	<a href="#">robot-dreams</a>	<a href="#">kfqq</a>	

### → 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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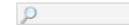
# Registration Form

Fill your data and you will receive a verification mail



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

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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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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)

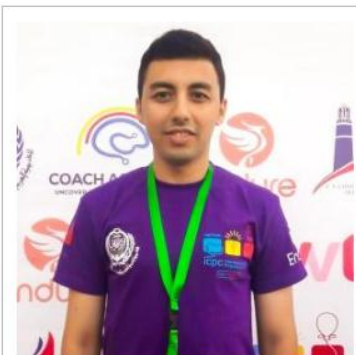
Last visit: **online now**

Registered: 6 years ago

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

[Write new entry](#)

[View my talks](#)



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Before contest

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

4 days

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→ Mohamed\_Ayman

Rating: **1614**  
Contribution: 0

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# Lecture Agenda

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✓ 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

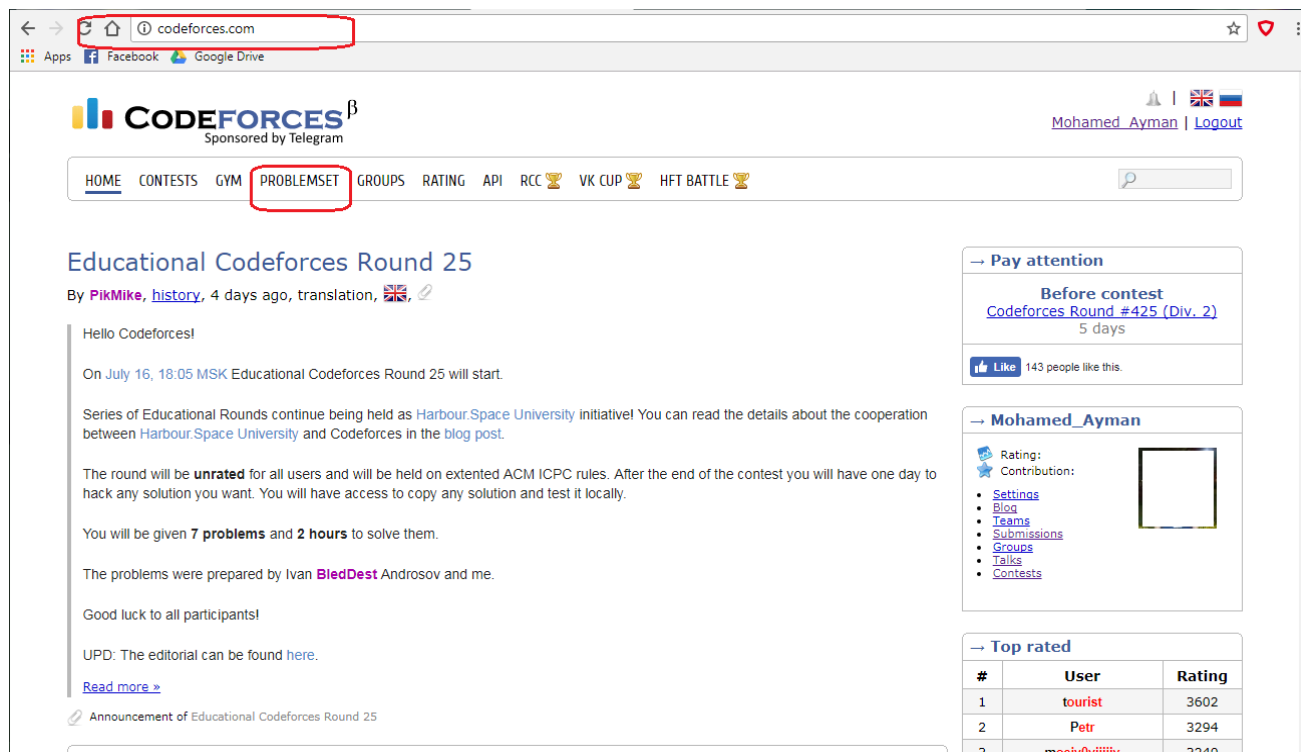
5- Submit Your Solution

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 displays 'codeforces.com'. The website's 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 features an announcement for 'Educational Codeforces Round 25' by PikMike, dated 4 days ago. The announcement text includes details about the contest's timing (July 16, 18:05 MSK), its nature as an unrated event, and the number of problems and time allotted. 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 performers.

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

## → 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

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

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

The screenshot shows a web browser at the URL `codeforces.com/problemset/problem/1/A`. The page is for a problem titled "A. Theatre Square" on the Codeforces platform. 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". The page also features a sidebar with navigation links (HOME, CONTESTS, GYM, PROBLEMSET, GROUPS, RATING, API, RCC, VK CUP, HFT BATTLE) and a section for "Codeforces Beta Round #1" with a "Finished" status and a "Practice" button. There is also a "Virtual participation" section and 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

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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 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.'

**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

On the right side of the page, there are several panels. The 'Codeforces Beta Round #1' panel shows 'Finished' and 'Practice' buttons. The 'Virtual participation' panel provides information about virtual contests and a 'Start virtual contest' button. The 'Submit?' panel shows a dropdown menu for the programming language (set to 'GNU G++14 6.2.0') and a 'Choose file' button.



# 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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- [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

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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
<a href="#">28691481</a>	2017-07-19 12:06:19	<a href="#">hank_moody</a>	<a href="#">158B - Taxi</a>	GNU C++	Running on test 1	0 ms	0 KB
<a href="#">28691479</a>	2017-07-19 12:06:17	<a href="#">rocky_</a>	<a href="#">4A - Watermelon</a>	GNU C++11	Running on test 1	0 ms	0 KB
<a href="#">28691477</a>	2017-07-19 12:06:01	<a href="#">vjude3</a>	<a href="#">459B - Pashmak and Flowers</a>	GNU C++	Wrong answer on test 4	358 ms	2800 KB
<a href="#">28691476</a>	2017-07-19 12:06:00	<a href="#">Bjarnestroustrup</a>	<a href="#">831C - Jury Marks</a>	GNU C++14	Time limit exceeded on test 1	2000 ms	5000 KB
<a href="#">28691475</a>	2017-07-19 12:05:54	<a href="#">ffbh</a>	<a href="#">818E - Card Game Again</a>	GNU C++11	Wrong answer on test 3	15 ms	2700 KB
<a href="#">28691474</a>	2017-07-19 12:05:52	<a href="#">k_k_3799</a>	<a href="#">825A - Binary Protocol</a>	GNU C++14	Wrong answer on test 2	0 ms	1900 KB
<a href="#">28691473</a>	2017-07-19 12:05:50	<a href="#">1504010611</a>	<a href="#">746D - Green and Black Tea</a>	GNU C++11	Compilation error	0 ms	0 KB
<a href="#">28691471</a>	2017-07-19 12:05:49	<a href="#">alaDDin101</a>	<a href="#">733A - Grasshopper And the String</a>	GNU C++11	Running on test 59	0 ms	0 KB
<a href="#">28691470</a>	2017-07-19 12:05:47	<a href="#">vjude2</a>	<a href="#">841B - Vladik and Complicated Book</a>	GNU C++	Wrong answer on test 1	15 ms	1900 KB
<a href="#">28691469</a>	2017-07-19 12:05:44	<a href="#">DeKode</a>	<a href="#">158A - Next Round</a>	GNU C++14	Wrong answer on test 6	30 ms	1900 KB
<a href="#">28691467</a>	2017-07-19 12:05:42	<a href="#">vjude1</a>	<a href="#">50C - Happy Farm 5</a>	GNU C++	Accepted	124 ms	3400 KB
<a href="#">28691466</a>	2017-07-19 12:05:38	<a href="#">vjude3</a>	<a href="#">291B - Command Line Arguments</a>	GNU C++	Wrong answer on test 5	15 ms	2900 KB
<a href="#">28691463</a>	2017-07-19 12:05:33	<a href="#">vjude1</a>	<a href="#">746C - Tram</a>	GNU C++	Accepted	15 ms	2100 KB
<a href="#">28691460</a>	2017-07-19 12:05:25	<a href="#">vivekgupta</a>	<a href="#">118D - Caesar's Legions</a>	GNU C++14	Accepted	30 ms	2000 KB
<a href="#">28691457</a>	2017-07-19 12:05:18	<a href="#">HopeDawn</a>	<a href="#">831A - Unimodal Array</a>	GNU C++14	Wrong answer on test 10	15 ms	1800 KB
<a href="#">28691455</a>	2017-07-19 12:05:17	<a href="#">ivashchenko_a</a>	<a href="#">734A - Anton and Danik</a>	Java 8	Accepted	139 ms	20500 KB
<a href="#">28691454</a>	2017-07-19 12:05:16	<a href="#">naimur978</a>	<a href="#">732A - Buy a Shovel</a>	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  $a \times a$ .

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

Problems

#	Name			
A	<a href="#">Watermelon</a> <sup>1</sup>	standard input/output 1 s, 64 MB		<a href="#">x3401</a>
B	<a href="#">Before an Exam</a>	standard input/output 0.5 s, 64 MB		<a href="#">x1395</a>
C	<a href="#">Registration System</a> <sup>1</sup>	standard input/output 5 s, 64 MB		<a href="#">x1398</a>
D	<a href="#">Mysterious Present</a>	standard input/output 1 s, 64 MB		<a href="#">x698</a>

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



# Filtration of The Round Status

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

<a href="#">41932179</a>	13:52:48	bharath_kns	<a href="#">A - Watermelon</a>	GNU C	Wrong answer on test 5	30 ms	0 KB
<a href="#">41932110</a>	2018-08-21 13:50:39	Thyroid	<a href="#">A - Watermelon</a>	GNU C++	Accepted	60 ms	0 KB
<a href="#">41932087</a>	2018-08-21 13:47:51	Thyroid	<a href="#">A - Watermelon</a>	GNU C++	Wrong answer on test 5	62 ms	0 KB
<a href="#">41932081</a>	2018-08-21 13:46:58	bharath_kns	<a href="#">A - Watermelon</a>	GNU C	Wrong answer on test 5	30 ms	0 KB
<a href="#">41931956</a>	2018-08-21 13:46:48	Thyroid	<a href="#">A - Watermelon</a>	GNU C++	Wrong answer on test 5	30 ms	0 KB
<a href="#">41931677</a>	2018-08-21 13:42:45	Thyroid	<a href="#">A - Watermelon</a>	GNU C++	Wrong answer on test 5	30 ms	0 KB
<a href="#">41931677</a>	2018-08-21 13:32:46	eduardonunes2525	<a href="#">A - Watermelon</a>	GNU C++11	Accepted	60 ms	0 KB
<a href="#">41931532</a>	2018-08-21 13:27:48	eduardonunes2525	<a href="#">A - Watermelon</a>	GNU C++11	Wrong answer on test 2	30 ms	0 KB
<a href="#">41931369</a>	2018-08-21 13:22:49	eduardonunes2525	<a href="#">A - Watermelon</a>	GNU C++11	Wrong answer on test 2	30 ms	0 KB
<a href="#">41930949</a>	2018-08-21 13:09:52	MayFloweryy	<a href="#">A - Watermelon</a>	GNU C++14	Wrong answer on test 5	30 ms	0 KB
<a href="#">41930872</a>	2018-08-21 13:07:08	MayFloweryy	<a href="#">A - Watermelon</a>	GNU C++14	Accepted	30 ms	0 KB
<a href="#">41930580</a>	2018-08-21 12:57:52	bqx	<a href="#">C - Registration System</a>	GNU C++11	Accepted	1682 ms	800 KB
<a href="#">41930538</a>	2018-08-21 12:55:45	luogu_bot2	<a href="#">A - Watermelon</a>	GNU C++	Accepted	62 ms	0 KB
<a href="#">41929696</a>	2018-08-21 12:23:54	FAYJUL	<a href="#">C - Registration System</a>	GNU C++11	Time limit exceeded on test 1	5000 ms	14100 KB
<a href="#">41929373</a>	2018-08-21 12:12:54	CtrlCV	<a href="#">A - Watermelon</a>	GNU C++17	Accepted	62 ms	0 KB
<a href="#">41929198</a>	2018-08-21 12:05:50	rubiks_spiedy	<a href="#">A - Watermelon</a>	GNU C++14	Accepted	62 ms	0 KB
<a href="#">41929158</a>	2018-08-21 12:04:24	rubiks_spiedy	<a href="#">A - Watermelon</a>	GNU C++14	Compilation error	0 ms	0 KB
<a href="#">41929116</a>	2018-08-21 12:03:06	jarvis307	<a href="#">A - Watermelon</a>	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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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
	<a href="#">41923289</a>	2018-08-21 09:01:24	artem3605	<a href="#">A - Watermelon</a>	Python 3	Accepted	218 ms	0 KB
	<a href="#">41912407</a>	2018-08-20 21:48:49	rajpal54	<a href="#">A - Watermelon</a>	Python 3	Accepted	216 ms	0 KB
	<a href="#">41912024</a>	2018-08-20 21:31:41	J_Allgood	<a href="#">A - Watermelon</a>	Python 3	Accepted	248 ms	0 KB
	<a href="#">41911919</a>	2018-08-20 21:27:54	MohamedAbnaby	<a href="#">A - Watermelon</a>	Python 3	Accepted	248 ms	0 KB
	<a href="#">41908124</a>	2018-08-20 18:48:22	Legends_of_superflarrow	<a href="#">A - Watermelon</a>	Python 3	Accepted	248 ms	0 KB
	<a href="#">41907503</a>	2018-08-20 18:28:23	subasishkar	<a href="#">A - Watermelon</a>	Python 3	Accepted	218 ms	0 KB
	<a href="#">41901193</a>	2018-08-20 15:14:04	egor2006	<a href="#">A - Watermelon</a>	Python 3	Accepted	248 ms	0 KB
	<a href="#">41899692</a>	2018-08-20 14:32:12	waska.chaduneli	<a href="#">A - Watermelon</a>	Python 3	Accepted	248 ms	0 KB
	<a href="#">41889880</a>	2018-08-20 09:32:41	EricLiam	<a href="#">A - Watermelon</a>	Python 3	Accepted	216 ms	0 KB
	<a href="#">41879885</a>	2018-08-20 03:43:53	onivy	<a href="#">A - Watermelon</a>	Python 3	Accepted	248 ms	0 KB
	<a href="#">41878841</a>	2018-08-20 02:41:03	petitfox	<a href="#">A - Watermelon</a>	Python 3	Accepted	218 ms	0 KB
	<a href="#">41877273</a>	2018-08-20 00:44:52	Bedo_Acm	<a href="#">A - Watermelon</a>	Python 3	Accepted	218 ms	0 KB
	<a href="#">41875138</a>	2018-08-19 23:24:50	rachitkawar	<a href="#">A - Watermelon</a>	Python 3	Accepted	248 ms	0 KB
	<a href="#">41870473</a>	2018-08-19 21:17:30	lxjuly	<a href="#">A - Watermelon</a>	Python 3	Accepted	218 ms	0 KB
	<a href="#">41827882</a>	2018-08-19 16:02:18	cheekypopcorn	<a href="#">A - Watermelon</a>	Python 3	Accepted	248 ms	0 KB
	<a href="#">41827877</a>	2018-08-19 16:02:09	hehezhou	<a href="#">A - Watermelon</a>	Python 3	Accepted	218 ms	0 KB
	<a href="#">41827309</a>	2018-08-19 15:44:09	Beni21	<a href="#">A - Watermelon</a>	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
<a href="#">41923289</a>	2018-08-21 09:01:24	artem3605	<a href="#">A - Watermelon</a>	Python 3	Accepted	218 ms	0 KB
<a href="#">41912407</a>	2018-08-20 21:48:49	rajpal54	<a href="#">A - Watermelon</a>	Python 3	Accepted	216 ms	0 KB
<a href="#">41912024</a>	2018-08-20 21:31:41	J_Allgood	<a href="#">A - Watermelon</a>	Python 3	Accepted	248 ms	0 KB
<a href="#">41911919</a>	2018-08-20 21:27:54	MohamedAbnaby	<a href="#">A - Watermelon</a>	Python 3	Accepted	248 ms	0 KB
<a href="#">41908124</a>	2018-08-20 18:48:22	Legends_of_superflarrow	<a href="#">A - Watermelon</a>	Python 3	Accepted	248 ms	0 KB
<a href="#">41907503</a>	2018-08-20 18:28:23	subasishkar	<a href="#">A - Watermelon</a>	Python 3	Accepted	218 ms	0 KB
<a href="#">41901193</a>	2018-08-20 15:14:04	egor2006	<a href="#">A - Watermelon</a>	Python 3	Accepted	248 ms	0 KB
<a href="#">41899692</a>	2018-08-20 14:32:12	waska.chaduneli	<a href="#">A - Watermelon</a>	Python 3	Accepted	248 ms	0 KB
<a href="#">41889880</a>	2018-08-20 09:32:41	EricLiam	<a href="#">A - Watermelon</a>	Python 3	Accepted	216 ms	0 KB
<a href="#">41879885</a>	2018-08-20 03:43:53	oniwy	<a href="#">A - Watermelon</a>	Python 3	Accepted	248 ms	0 KB
<a href="#">41878841</a>	2018-08-20 02:41:03	petitfox	<a href="#">A - Watermelon</a>	Python 3	Accepted	218 ms	0 KB
<a href="#">41877273</a>	2018-08-20 00:44:52	Bedo_Acm	<a href="#">A - Watermelon</a>	Python 3	Accepted	218 ms	0 KB
<a href="#">41875138</a>	2018-08-19 23:24:50	rachitkawar	<a href="#">A - Watermelon</a>	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





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 href="#">A - Watermelon</a>	Python 3	Accepted	218 ms	0 KB
2018-08-19 15:44:09	Beni21	<a href="#">A - Watermelon</a>	Python 3	Accepted	216 ms	0 KB
2018-08-19 14:03:01	windyknight	<a href="#">A - Watermelon</a>	Python 3	Accepted	218 ms	0 KB
2018-08-19 13:06:46	practice.	<a href="#">A - Watermelon</a>	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

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- ✓ 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)		<a href="#">Jan/29/2020 16:35<sup>UTC+2</sup></a>	02:00	Before start 4 days	Before registration 25:47:01
Codeforces Round #616 (Div. 1)		<a href="#">Feb/02/2020 16:05<sup>UTC+2</sup></a>	02:00	Before start 8 days	Before registration 5 days
Codeforces Round #616 (Div. 2)		<a href="#">Feb/02/2020 16:05<sup>UTC+2</sup></a>	02:00	Before start 8 days	Before registration 5 days
Codeforces Round #617 (Div. 3)		<a href="#">Feb/04/2020 16:35<sup>UTC+2</sup></a>	02:00	Before start 10 days	Before registration 7 days
Kotlin Heroes: Practice 3		<a href="#">Feb/20/2020 14:35<sup>UTC+2</sup></a>	7:00:00	Before start 4 weeks	Before registration 4 weeks
Kotlin Heroes: Episode 3		<a href="#">Feb/27/2020 15:35<sup>UTC+2</sup></a>	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)		<a href="#">Jan/29/2020 16:35 UTC+3</a>	02:00	Before start 4 days	Before registration 25:31:22
Codeforces Round #616 (Div. 1)		<a href="#">Feb/02/2020 16:05 UTC+3</a>	02:00	Before start 8 days	Before registration 5 days
Codeforces Round #616 (Div. 2)		<a href="#">Feb/02/2020 16:05 UTC+3</a>	02:00	Before start 8 days	Before registration 5 days
Codeforces Round #617 (Div. 3)		<a href="#">Feb/04/2020 16:35 UTC+3</a>	02:00	Before start 10 days	Before registration 7 days
Kotlin Heroes: Practice 3		<a href="#">Feb/20/2020 14:35 UTC+3</a>	7:00:00	Before start 4 weeks	Before registration 4 weeks
Kotlin Heroes: Episode 3		<a href="#">Feb/27/2020 15:35 UTC+2</a>	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) <a href="#">Enter &gt;</a> <a href="#">Virtual participation &gt;</a>	MikeMirzayanov vovuh	Jan/22/2020 16:35 UTC+2	02:10	<a href="#">Final standings</a> Solved: 4 out of 6	<a href="#">x17661</a>



# 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)		<a href="#">Jan/29/2020 16:35UTC+3</a>	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<sup>UTC+2</sup> (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) <a href="#">Enter »</a> <a href="#">Virtual participation »</a>	MikeMirzayanov vovuh	Jan/22/2020 16:35 <sup>UTC+2</sup>	02:10	<a href="#">Final standings</a> Solved: 4 out of 6	<a href="#">x17661</a>
Codeforces Round #614 (Div. 1) <a href="#">Enter »</a> <a href="#">Virtual participation »</a>	Akikaze low_ xuanquang1999	Jan/19/2020 15:35 <sup>UTC+2</sup>	02:00	<a href="#">Final standings</a>	<a href="#">x1391</a>
Codeforces Round #614 (Div. 2) <a href="#">Enter »</a> <a href="#">Virtual participation »</a>	Akikaze low_ xuanquang1999	Jan/19/2020 15:35 <sup>UTC+2</sup>	02:00	<a href="#">Final standings</a>	<a href="#">x13746</a>



# Lecture Agenda

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- ✓ 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](#)

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Problems

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

[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](#)





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