

Codeforces Round #773

 By [ilyakrasnovv](#), 4 days ago, translation, 

Hello, Codeforces!

We are glad to invite everyone to participate in [Codeforces Round #773 \(Div. 1\)](#) and [Codeforces Round #773 \(Div. 2\)](#), which will be held on [Feb/23/2022 13:10 \(Moscow time\)](#).

Notice the unusual time! The round will be rated for both divisions. Each division will have **6** problems, and you will have **2 hours** to solve them. We recommend you read all the problems!

Tasks are based on [RocketOlymp](#), and were written and prepared by [__silaedr__](#), [Allvik06](#), [alegsandyr](#), [ilyakrasnovv](#), and [isaf27](#).

We are very thankful to

- [isaf27](#) for the great coordination, valuable advice, and patience.
- [Renatyss](#), [stepanov.aa](#), [_tryhard](#), [Siberian](#), [kirill.kligunov](#), [arbuzick](#) for the help during discussing and preparing problems.
- Our testers: [AlperenT](#), [ArtNext](#), [EvgeniyPonassenkov](#), [FedShat](#), [Qwerty1232](#), [TeaTime](#), [TheEvilBird](#), [ak2006](#), [generic_placeholder_name](#), [philmol](#), [silvvasil](#), [tox1c_kid](#) for their feedback
- [pakhomovee](#) for the task, that didn't find its place in the final problemset.
- [KAN](#) for helping with round preparation
- [MikeMirzayanov](#) for codeforces and polygon platform

Olympiad's participants cannot participate in codeforces rounds simultaneously.

Good luck and have fun!

UPD — Scoring distribution:

div2: 500 – 750 – 1250 – 2000 – 2000 – 2500

div1: 500 – 1250 – 1250 – 1750 – 2250 – 3000

UPD — Editorial


[Read more »](#)

 Announcement of Codeforces Round #773 (Div. 1)

 Announcement of Codeforces Round #773 (Div. 2)

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 [ilyakrasnovv](#)

 4 days ago

 [359](#)

Educational Codeforces Round 123 [Rated for Div. 2]

 By [awoo](#), [history](#), 5 days ago, translation, 

Hello Codeforces!

On [Feb/22/2022 17:35 \(Moscow time\)](#) Educational Codeforces Round 123 (Rated for Div. 2) will start.

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

→ Pay attention

Contest is running
[Kotlin Heroes: Practice 9](#)
 3 days
[Register now »](#)

→ Top rated

#	User	Rating
1	tourist	3946
2	MiracleFaFa	3604
3	Benq	3513
4	slime	3475
5	ecnerwala	3467
5	maroonrk	3467
7	Um_nik	3438
8	greenheadstrange	3417
9	ksun48	3411
10	Radewoosh	3404

[Countries](#) | [Cities](#) | [Organizations](#)

[View all →](#)

→ Top contributors

#	User	Contrib.
1	YouKn0wWho	207
2	Monogon	201
3	Um_nik	194
4	awoo	191
5	-is-this-fft-	185
6	sus	176
7	Errichto	171
8	antontrygubO_o	169
9	maroonrk	168
10	SecondThread	164

[View all →](#)

→ Find user


Handle:

[Find](#)

→ Recent actions

[kostka](#) → [Russian propaganda](#) 

[Mi.Lord](#) → [LuckyGuy_05 and Hudayar are best contributors.](#) 

[kevbamboo](#) → [Why US and Ukraine actually have fault \(please read the whole thing\)](#) 

[vortex_nitt](#) → [Invitation to Hunt The Code](#) 

[Yukuk](#) → [\[Tutorial\] 1-K BFS](#) 

in the [blog post](#).

This round will be **rated for the participants with rating lower than 2100**. It will be held on extended ICPC rules. The penalty for each incorrect submission until the submission with a full solution is 10 minutes. After the end of the contest you will have 12 hours to hack any solution you want. You will have access to copy any solution and test it locally.

You will be given **6 or 7 problems** and **2 hours** to solve them.

The problems were invented and prepared by Adilbek [adedalic](#) Dalabaev, Vladimir [vovuh](#) Petrov, Ivan [BledDest](#) Androsov, Maksim [Neon](#) Mescheryakov and me. Also huge thanks to Mike [MikeMirzayanov](#) Mirzayanov for great systems Polygon and Codeforces.

Good luck to all the participants!

Our friends at Harbour.Space also have a message for you:

Hey, Codeforces!

Once again, it is time for another exciting **scholarship opportunity** from Harbour.Space!

We have partnered with various tech companies to offer Bachelor's or Master's degree scholarships in Computer Science, Data Science, Cyber Security, and Front-end Development and work experience in the partnered companies.

We are looking for various junior to mid-level positions to fill in different fields such as:

- **Java Spring / Node.js Back-End Developer**
- **DevOps Engineer**
- **Kotlin Web App Developer**
- **React / React Native Front-End Developer**
- **Cyber Security Specialist**

Requirements:

1. *High School Diploma for Bachelor degree applicants or **Bachelor's degree** for Master degree applicants*
2. *Professional fluency in **English***
3. ***Previous experience** is a must for Master student applicants and a plus for Bachelor student applicants*

Make sure to **apply before Mar 13, 2022**, to be eligible for the scholarship and reduced application fee.

[APPLY NOW →](#)

Keep in touch and follow us on [LinkedIn](#) for more scholarship opportunities. And follow us on [Instagram](#) to evidence student life, events, and success stories from students.

Good luck on your round, and see you next time!

Harbour.Space University

UPD: [Editorial](#) is out

[Read more »](#)

MetaX → [No more war](#)

[try_kuhn](#) → [Ukraine](#)

[ko_osaga](#) → [XXII Open Cup. Grand Prix of Daejeon](#)

[xiaowuc1](#) → [USACO 2021-2022 Third Contest](#)

[beastslayer123](#) → [I BEG TO STOP IT!!!](#)

[Vladithur](#) → [Editorial of Codeforces Round #769](#)

Hacker-M → [Support Syria, Palestine,](#)

[antontrygubO_o](#) → [Support Ukraine](#)

[chokudai](#) → [AtCoder Beginner Contest 241 \(Sponsored by Panasonic\) Announcement](#)

[quiet_one](#) → [Hackerearth february circuit 2022](#)

[ChaosAngel](#) → [No reason not to speak about War on CF](#)

[maroonrk](#) → [AtCoder Regular Contest 136 Announcement](#)

[Dinh_Quang_Huy](#) → [Where is Go Study Round 1 ???](#)

[TudorStefan](#) → [Is my convex hull code getting TLE due to atan\(\) being slow, or is there some other reason?](#)

[liya_MSU](#) → [Stop the war](#)

[ilyakrasnovv](#) → [Codeforces Round #773](#)

[likhon15](#) → [I Stand With Ukraine](#)

[hgr.aziz277](#) → [Three numbers](#)

[AIFlen](#) → [Codeforces Round #750 \(Div.2\) Editorial](#)


[ilyakrasnovv](#) → [Codeforces Round #773 editorial](#)

[Detailed →](#)

 Announcement of Educational Codeforces Round 123 (Rated for Div. 2)


 +198 

 [awoo](#)

 5 days ago

 [159](#)

Kotlin Heroes 9 Announcement

By [BledDest](#), 4 days ago, 

Hello,
Codeforces!

First and foremost, we would like to say a massive thank you to everyone who entered and submitted their answers to the eight Kotlin Heroes competitions which were held previously: [Episode 1](#), [Episode 2](#), [Episode 3](#), [Episode 4](#), [Episode 5: ICPC Round](#), [Episode 6](#), [Episode 7](#), and [Episode 8](#).

Ready to challenge yourself to do better? The [Kotlin Heroes: Episode 9](#) competition will be hosted on the Codeforces platform on [Mar/01/2022 17:35 \(Moscow time\)](#). The contest will last 2 hours 30 minutes and will feature a set of problems from simple ones, designed to be solvable by anyone, to hard ones, to make it interesting for seasoned competitive programmers.

Prizes:

Top three winners will get prizes of \$512, \$256, and \$128 respectively, top 50 will win a Kotlin Heroes t-shirt and an exclusive Kotlin sticker, competitors solving at least one problem will enter into a draw for one of 50 Kotlin Heroes t-shirts.

Registration is already open and available via [the link](#). It will be available until the end of the round.

The round will again be held in accordance with a set of slightly modified ICPC rules:

- The round is unrated.
- The contest will have 9 or 10 problems of various levels of complexity.
- You are only allowed to use Kotlin to solve these problems.
- Participants are ranked according to the number of correctly solved problems. Ties are resolved based on the lowest total penalty time for all problems, which is computed as follows. For each solved problem, a penalty is set to the submission time of that problem (the time since the start of the contest). An extra penalty of 10 minutes is added for each failed submission on solved problems (i. e., if you never solve the problem, you will not be penalized for trying that problem). If two participants solved the same number of problems and scored the same penalty, then those of them who had previously made the last successful submission will be given an advantage in the distribution of prizes and gifts.

REGISTER →

If you are still new to Kotlin we have prepared [a tutorial on competitive programming in Kotlin](#) and [Kotlin Heroes: Practice 9](#), where you can try to solve a few simple problems in Kotlin. The practice round is available by [the link](#).

We made an announcement about the Kotlin Heroes: Episode 9 practice stream, but unfortunately we had to cancel it. Sorry for the inconvenience!

We wish you luck and hope you enjoy Kotlin.


[Read more »](#)

 Announcement of Kotlin Heroes: Episode 9

 Announcement of Kotlin Heroes: Practice 9

 +51 

 [BledDest](#)

 4 days ago

 2

Codeforces Round #772 (Div. 2)

By [abc864197532](#), [history](#), 8 days ago, 

Hello, Codeforces!

[dannyboy20031204](#) and I are glad to invite everyone to participate in [Codeforces Round #772 \(Div. 2\)](#), which will be held on [20.02.2022 17:35 \(Московское время\)](#). **This Round will be rated for participants with rating lower than 2100.** You will have **2 hours** to solve **6 problems**.

We would like to thank:

- **74TrAkToR** for excellent coordination of the round and translating the statements.

- **mhq**, **generic_placeholder_name**, **null_awe**, **ptd**, **Fysty**, **8e7**, **yungyao**, **Devil**, **amano_hina**, **Dragonado**, **DlvanCode**, **voventa**, **lox123**, **Marslai24**, **FHVirus**, **saarang**, **Olly_Z**, **arseny_**, **Prokhor08**, **sam571128**, **efimovpaul**, **ColtenOuO**, **kucipendik**, **sus** for testing this round and providing very useful feedback.
- **generic_placeholder_name** for providing an awesome problem idea ~~when our problems are rejected by the coordinator.~~
- **8e7** for verifying our statements and tutorials, correcting many mistakes and making it easier to read.
- **MikeMirzayanov** for great Codeforces and Polygon platforms.

Score distribution: 500 – 1000 – 1500 – 2250 – 2250 – 3000

I hope all of you will enjoy the problems and have a positive delta. GL & HF ^^.

UPD1: Thanks for your participation! [Editorial](#) is out.

UPD2: Congratulations to the winners:

Div1 + Div2:

1. **MiracleFaFa**
2. **eeecs**
3. **YanZhuoZLY**
4. **kotatsugame**
5. **risujiroh**

Div2:


1. **YanZhuoZLY**
2. **MeliodasIRA**
3. **rainboy**
4. **Bekzhan**
5. **Vsinger_YuezhengLing**

[Read more »](#)

 Announcement of Codeforces Round #772 (Div. 2)


 **+634** 

 [abc864197532](#)

 8 days ago

 [183](#)

Codeforces Round #771 (Div. 2)

By **atodo**, 13 days ago, 

Hello, Codeforces!

I am happy to invite you to [Codeforces Round #771 \(Div. 2\)](#), which will take place on [Feb/14/2022 17:35 \(Moscow time\)](#). **The round will be rated for participants with rating lower than 2100.** You will have **2 hours** to solve **6 problems**. The problems were authored and prepared by me.

I would like to thank the following people who made the round possible:

- **Artyom123** for coordination, help in problem preparation and translating the statements.
- **KAN** for helping with round preparation.
- **geniucos** and **spatarel** for discussing problems with me way before the round was proposed.
- **gamegame**, **Kirill22**, **AlexLuchianov**, **Monogon**, **wxhtzdy**, **generic_placeholder_name**, **BlueDiamond**, **Devil**, **Ziware**, **Utkarsh.25dec**, **TeaTime**, **null_awe**, **manish.17**, **gojira**, **shishyando**, **dbsic211**, **ak2006**, **namanbansal013**, **violvlo** and **sus**, for testing and providing valuable feedback.
- **MikeMirzayanov** for great Codeforces and Polygon platforms.

I hope you ~~have no plans for Valentine's Day~~ find the problems interesting and enjoy the round. See you in the standings! ♥

Scoring distribution: 500 – 750 – 1250 – 1750 – 2500 – 3250

UPD: Thanks to **ak2006**, video editorials for some of the problems will be available on [his](#)

channel after the round.


UPD: [Editorial](#) is out!

[Read more »](#)

 Announcement of Codeforces Round #771 (Div. 2)


 +661 

 [atodo](#)

 13 days ago

 [170](#)

Codeforces Global Round 19

By [Mangooste](#), [history](#), 2 weeks ago, translation, 

Hello, Codeforces! (づ。ゝ。ゝ。づ ♡

On [Feb/12/2022 17:35 \(Moscow time\)](#) we will host [Codeforces Global Round 19](#).

It is the first round of a 2022 series of [Codeforces Global Rounds](#) supported by XTX Markets. The rounds are open and rated for everybody.

The presents for this round:

- 30 best participants get a t-shirt.
- 20 t-shirts are randomly distributed among those with ranks between 31 and 500, inclusive.

The presents for the 6-round series in 2022:

- In each round top-100 participants get points according to the [table](#).
- The final result for each participant is equal to the sum of points he gets in the four rounds he placed the highest.
- The best 20 participants over all series get sweatshirts and place certificates.

The problems were written and prepared by [Mangooste](#), [TeaTime](#), [__JustMe__](#) and [EvgeniyPonassenkov](#).

We are very thankful to people, who made this round possible:

- [DmitryGrigorev](#) for the great coordinating and helping us with preparing problems.
- Our testers: [gamegame](#), [dorijanlendvaj](#), [fedoseev.timofey](#), [tfg](#), [fastmath](#), [Allvik06](#), [Pechalka](#), [Alexdat2000](#), [pakhomovee](#), [Frankenween](#), [philmol](#), [Ultrasanic](#), [tox1c_kid](#), [Viktorius](#) and [Urvuk3](#) for their feedback, especially [tfg](#) for finding mistakes in the statements.
- [MikeMirzayanov](#) for codeforces and polygon platform!
- [KAN](#) for his [contribution](#) to this round as well.

You will have 2.5 hours to solve 8 problems. And we recommend you to read all the problems!

The score distribution will be announced closer to the start of the round.

UPD: The scoring distribution: 500 — 1000 — 1500 — 2000 — 2500 — 3250 — 4000 — 4000

UPD: [Editorial](#).

Congratulations to the winners:

1. [tourist](#)
2. [Um_nik](#)
3. [Maksim1744](#)
4. [heno239](#)
5. [ksun48](#)
6. [Vercingetorix](#)
7. [jiangly](#)
8. [SomethingNew](#)
9. [Laurie](#)
10. [greenheadstrange](#)

[Read more »](#)

 Announcement of Codeforces Global Round 19

+1011

Mangooste

2 weeks ago

181

Codeforces Round #770 (Div. 2)

By [Alexdat2000](#), 3 weeks ago, 

Greetings to all humans and robots on this site!

[sevill777](#), [crazyilian](#), [Mangooste](#), [imachug](#) and me ([Alexdat2000](#)) invite everyone to participate in the [Codeforces Round #770 \(Div. 2\)](#), which will take place this [Feb/06/2022 17:35 \(Moscow time\)](#). **This round will be rated for all participants with a rating of strictly less than 2100.** You will have **2 hours and 30 minutes** to solve 6 problems. There will be an interactive problem in the round, so we recommend all new participants to read [Interactive Problems Guide](#).

The traditional thank-you list:

- Thanks to [antontrygubO_o](#) for coordinating us for a very long time and helping to improve one of the tasks
- Thanks to [alexela12345](#) for tasks that did not survive till the final version of the round
- Thanks to [Pechalka](#), [alexela12345](#), [Kirill22](#), [physics0523](#), [PurpleCrayon](#), [teraqqq](#), [tem_shett](#), [FairyWinx](#), [Dart-Xeyter](#), [Vladithur](#), [Igorfardoc](#), [despair_101](#), [shishyando](#), [Brahma_tet](#) and [KROL_fsfbj](#) for quality testing of the round and very helpful feedback
- Thanks to [MikeMirzayanov](#) for the Codeforces and Polygon

Scoring distribution: **500 — 1250 — 1500 — 2000 — 2500 — 3000**.

Codeforces Round #770 (Div. 2) is ready to resist the rise of machines

▶ Do you think you are stronger than a robot or not?

We wish all participants high rating! Show that people are still worthy!

UPD: [Editorial](#)

[Read more »](#)

 Announcement of Codeforces Round #770 (Div. 2)

 round, google, 179 contest


+957

Alexdat2000

3 weeks ago

304

Pinely Treasure Hunt Contest

By pinely, [history](#), 3 weeks ago, 

Hello, codeforces!

Pinely is a high-frequency trading company. We trade at the exchanges all over the world. This year we are the sponsors of the online Petrozavodsk competitive programming camp. We have prepared a fun contest for camp participants and invite everybody to join it on CodeForces!

[Pinely Treasure Hunt Contest](#) will be held on Saturday, [Feb/05/2022 13:00 \(Moscow time\)](#).

The participants will be offered to solve an interactive optimization problem with open tests and will have 3.5 hours to work on it. You can join individually or in teams of up to 3 people. The contest will be **unrated**. Winners among camp participants as well as the 3 best teams in overall standings will be awarded with pinely t-shirts.

Since the contest is targeted for participants of the Petrozavodsk training camp, it'll be most interesting for **participants with codeforces rating 2000+**.

We are grateful to [MikeMirzayanov](#) for the opportunity to host the contest on codeforces.

A couple of words about pinely: we conduct algorithmic trading on various exchanges. Our offices are located in Moscow and Amsterdam. Our colleagues face various challenges, such as: coming up with trading strategies and implementing them, optimizing trading systems to

achieve the fastest reaction to the market events, storage and processing of high volumes of historical data. Ability to write effective C++ code, algorithmic thinking and mathematical intuition are all useful in our day-to-day work, so a significant part of our team participates in various programming and math competitions.

To learn more about pinely you can visit pinely.com or you can find our colleagues on CF in [pinely organization](https://pinely.org). You can send us your CV to hr@pinely.com, even if you are not participating in the contest.

Good luck and have fun!

UPD Congratulations to the winners!

Winners of the joint contest:

1. [itmo.algo.teaching](#): **tourist**, **pashka**, **Nebuchadnezzar**
2. [SPb NRU ITMO 3](#): **VArtem**, **antonkov**, **qwerty787788**
3. [xvr and his friends](#): **wygzgyw**, **frame233**, **wasas855**

Winners among the participant of Petrozavodsk training camp:

1. [Never Give Up](#): **Valera_Grinenko**, **Crescendo**, **353cerega**
2. [Saratov SU Daegons](#): **awoo**, **Neon**, **vovuh**
3. [A-SOUL_Unofficial](#): **rg_gr**, **pigstd**, **dXqwq**

[Read more »](#)

 Announcement of Pinely Treasure Hunt Contest

 [pinely](#), [ptz](#), [hft](#)


 +345 

 [pinely](#)

 3 weeks ago

 70

AlphaCode (DeepMind) Solves Programming Problems on Codeforces

By [Una_Shem](#), 3 weeks ago, 

Hello, community.

Today DeepMind announced a new achievement of AI. And it is directly related to what we love — programming problems.

They have developed AI capable of solving some competitive programming problems! The future has arrived.

You should read solutions of SelectorUnlimited, WaggleCollide, and AngularNumeric solutions. All solutions are written automatically. The only input for writing solutions is a problem statement in English.

Details can be read at the link <https://deepmind.com/blog/article/Competitive-programming-with-AlphaCode>

Apparently, if these accounts would take part in real competitions, then their rating would be about 1300.

Terminator is ready to take part in Codeforces Round #770 (Div. 2)


In 1997 Kasparov played against (and lost) the supercomputer DeepBlue. Perhaps we will be witnessing a confrontation between **tourist** and AI in near future. What do you think?

[Read more »](#)

 [ai](#), [alphacode](#), [deepmind](#)

 +3029 

 [Una_Shem](#)

 3 weeks ago

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