



Information and Rules

What is Ritangle?

Ritangle is a maths competition for teams of A level Mathematics, Scottish Highers or International Baccalaureate students attending the same school/college anywhere in the world.

It is free to enter. Questions will be released over a period of approximately 10 weeks to the Ritangle website (www.integralmaths.org/ritangle) and to the Integral Twitter feed ([https://twitter.com/Integral Maths](https://twitter.com/Integral_Maths)).

After the first 25 questions have been released a final (multi-part) question will be released. Answers to the first 25 questions are necessary to fully solve the final (multi-part) question.

Use of computers to solve problems is encouraged.

The aim is for students to have fun and to be engaged.

How do you say 'Ritangle'?

Ritangle is pronounced like 'right angle' or 'wry tangle'.

How will Ritangle 2019 work?

1. There are 25 questions prior to the final multi-part question. Answers to these are necessary to solve the final multi-part question. The questions will be released at 09:00 GMT on the following dates via the Integral Twitter feed and to integralmaths.org/ritangle

1	07/10/2019
2	014/10/2019
3	21/10/2019
4	4/11/2019
5	11/11/2019
6	12/11/2019
7	13/11/2019
8	14/11/2019

9	15/11/2019
10	18/11/2019
11	19/11/2019
12	20/11/2019
13	21/11/2019
14	22/11/2019
15	25/11/2019
16	26/11/2019
17	27/11/2019
18	28/11/2019
19	29/11/2019
20	2/12/2019
21	3/12/2019
22	4/12/2019
23	5/12/2019
24	6/12/2019
25	9/12/2019

2. The final multi-part question will be released on 10/12/2019 at 1600 GMT.
3. Team will be able to check their final answers to the first five questions and to the totals of the final answers to questions 6-10,11-15,16-20 and 21-25 via the Ritangle webpage.
4. To fully answer the final multi-part question, correct answers to questions 1-25 must be used. It will not be necessary to have correct answers to all of questions 1-25 to answer all of the final multi-part question correctly.
5. Technology could be useful for some questions; suitable help with using technology will be available on the Ritangle website.
6. If a question is found to be difficult, we may give hints. Any hints will be made available via Twitter and the Ritangle website.
7. Answers to the final question, including the tie breaker, will be submitted via a form on the Ritangle website which will be available from 1600 GMT on 10/12/2019.
8. Competitors or teachers can send us an e-mail about their participation in Ritangle to ritangle@integralmaths.org. This can be used for any queries about the competition. It can also be used to let us know that your school/college is participating in the competition, in which case please confirm whether you are happy for us to publicise the details. We may, for example,

Tweet about it on @Integral_Maths and/or @MEIMaths Twitter feeds or post it on the @MEIMaths Facebook page.

Ritangle Rules

Entrants will need to tick a box on the Ritangle website indicating they agree to these to register their team.

1. There are no restrictions on team size. Teams should consist of students of AS/A level Mathematics, Scottish Highers or the International Baccalaureate. All the students in a team must attend the same school/college.

One student from the team must register the team and submit answers to the preliminary round and main competition; the team should agree who this will be to ensure there is only one entry per team. This student is referred to below as the Team Captain. Every student can only be in one team, including the Team Captain. Registration is via the Ritangle webpage and a team must be registered in order to submit answers to the preliminary round and to the main completion. Registration will be open from 7th October 2019 until end of 9th December 2019.

The Team Captain must inform a Nominating Teacher at their school that their team is competing, and provide that teacher with the names of all the students in their team. When registering the name of the Team Captain, email address of the Team Captain, name of school/college, name of Nominating Teacher, e-mail address of Nominating Teacher must be included. The Nominating Teacher will need to be available on this email on 16th and 17th December 2019. A teacher can be the Nominating Teacher for more than one team.

So a list of the information required to register a team is

- School/college name
- Team Captain Name
- Team Captain E-mail Address
- Team Name
- Nominating Teacher Name
- Nominating Teacher E-mail address

The Team Captain should check their team's name with their Nominating Teacher to make sure it is acceptable to their school/college, should their school/college wish to publish it.

2. Teams should keep evidence of their work on the questions. The judges may request to see this. It is suggested that each team nominates a member as Team Archivist to keep the team's working for the questions as they are attempted.

3. An entry to the competition requires the submission of answers to the final question via a webform together with the information listed in 1. above. Entries will only be accepted after the final question has been posted at 1600 on Tuesday 10th December 2019. Teams may submit answers to the final question more than once, but they will need to submit all their answers to the multi-part question each time they do this.
4. Any news, such as the discovery of an error in one of the questions, or a change in the rules, will be announced on the Ritangle website.
5. Every entry will be automatically acknowledged to the e-mail address of the student and the Nominating Teacher in 1.
6. Don't publicise/share your answers. Other people are working on the puzzle, and their work should be respected.
7. Don't publicise/share any clues released.
9. Any help with the questions is permitted, including finding information about the questions on the web and using technology. The only exception to this is that teachers should not help students directly (but help with relevant theory is fine). Team members must understand any help received, and have the working to demonstrate this (see 2).
10. Answers for the final question will be accepted up until 0900 on Monday 16th December 2019. After that:
 - (i) the team scoring most highly on the final question will be declared the winner, subject to their working satisfying the judges.
 - (ii) if more than one team scores most highly on the final question then the winner will be chosen, from such teams, as the team with the closest answer to the correct answer to the tiebreak question, subject to their working satisfying the judges.
 - (iii) if there is more than one team with both the highest score on the final question and the closest answer to the correct answer to the tiebreak question, the winner will be chosen, from such teams, as the team that submitted those answers first, subject to their working satisfying the judges.
 - (iv) In the event that the above does not determine a winner, the winning team will be chosen at the discretion of the judges based on the answers submitted.
11. If there is a possibility a team has won, in accordance with 10, the judges will contact the Nominating Teacher to verify details of the team and their

participation. If the answer is satisfactory to the judges (see 2) then that team will be the winner.

12. The decision of the judges is final. No discussion will be entered into regarding the decision over who is the winner.
13. The winning team and the answers will be announced on the Ritangle website at 09:00 GMT on the website at 0900 on 17th December 2019 or as soon as possible after that.
14. Every team who submits a complete set of correct answers to the final question (excluding the tiebreak question) prior to the correct answers being published (or being made available elsewhere on the web), will receive a certificate by email to the Nominating Teacher.
15. Anyone found leaking the answers or clues inappropriately and anyone found making intentional use of such leaks will be barred from receiving the prize
16. Anyone leaking the answers inappropriately and anyone making use of such a leak will be barred from receiving any prize.
17. By entering there is agreement to participate in publicity about the competition. This includes sending MEI a suitable photo of the winning team with permission that it can be used by MEI on websites, social media and printed materials.
18. The prize will be a maths hamper, including an Integral subscription for the school/college, and a trophy, and this will be awarded to the school of the winning team. Due to postage costs we reserve the right to substitute a prize of equivalent value but of less weight/bulk should the winning team be based outside mainland UK.
19. The judges reserve the right to change these rules if necessary.

Any further questions?

- Competitors or teachers can email: ritangle@mei.org.uk with any queries you may have.
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