

2026 IMPSC Application Form

1. Student Name

2. School

3. Nationality

4. Date of Birth

5. Grade

6. Email address of the school teacher or mentor who will provide the recommendation letter

7. Parent's Email Address

8. Please indicate the session you wish to apply for.

(1) Session 1 — *June 22, 2026 – July 11, 2026*

Mathematics: Number Theory

Physics: Classical Mechanics

(2) Session 2 — *July 13, 2026 – August 1, 2026*

Mathematics: Topology

Physics: Beyond Classical Mechanics

(3) Either Session 1 or Session 2 is acceptable

(4) Apply for both Session 1 and Session 2

Please note that Session 2 is designed as a more advanced program. Due to its higher level of difficulty, enrollment will be limited, and only a small number of specially selected students will be invited to participate.

International Math & Physics Summer Camp (IMPSC) 2026

IMPSC was established by Professor S. Dasgupta, a Physics professor at the Indian Institute of Technology (IIT) Ropar campus. It is an online summer camp designed to provide high school students with intensive education in college-level Physics and Math, which are typically not accessible in school, over a three-week period.

Classes are conducted by professors and PhDs from the Indian Institute of Technology (IIT), and daily assignments are checked, with students required to make presentations.

To participate in IMPSC, the following documents are required:

1. A recommendation letter from a teacher or mentor (preferably from a math or physics teacher at your school). (Optional)
2. Problem-solving (Choose either Set 1 or Set 2, complete the answers, and send the file in doc, tex, or pdf format).
3. Application form and Essay.
4. School Report Card (Internet Screenshot Also Acceptable)
5. Any math or science-related papers. (Optional)
6. Awards Related to Mathematics and Physics (Optional)

The application deadline is April 25, 2026, and we will review applications on a rolling basis, notifying each applicant of their acceptance status individually. The registration period for accepted students will begin on May 5.

This is the third year of the IMPSC summer camp, and it is a highly competitive program. Moreover, it is a program that attracts exceptional students from around the world in the fields of math and physics.

How to apply:

1. The recommendation file from your teacher or mentor will be sent directly to them.
2. Please compress all files into a ZIP file and send it to impsc@imc-impea.org. The file name should be the student's name.

Important Notice:

Please be aware that using ChatGPT for solving problems or writing essays will be detected. Additionally, you must solve the problems independently and should not seek help from others. If any such violations are found, your entire application will be disqualified.

For further details, please contact impsc@imc-impea.org.

Address: Department of Physics Super Academic Block IIT Ropar, Rupnagar, Punjab, India, PIN 140301 (India)

2026 IMPSC Essay

There is no word limit.

1. Why did you apply for IMPSC, and how did you learn about it?
2. What are your hobbies?
3. What is your level of proficiency in English? Are you able to attend classes and make presentations in English?
4. At the Indian Institute of Technology (IIT), students are required to complete 432 credits before graduation, while most other universities require only about 150–190 credits. As a result, IIT students are focused entirely on their studies throughout their college years. If you participate in IMPSC, do you think you can commit to your studies with the same level of dedication as IIT students?
5. Have you read any math or science books? What was the book, and can you briefly summarize its content?
6. Do you have any special math or science projects outside of the regular school curriculum?

7. Please tell us about any math or science competitions you have participated in. Include the name of the competition and when you participated, but there is no need to mention your scores. We are interested in seeing your passion for math and science, not just your skills.

8. List five universities you wish to apply to and specify your desired major.

9. Please upload all certificates, papers, etc., in a zip file. Additionally, organize your school and extracurricular activities from the most recent to the earliest, listing 5–10 activities, and also list the awards you have received, from the most recent to the earliest, with 5–10 awards.

Please choose only one set, either SET 1 or SET 2, and complete that set before submitting your work.

For SET 1, we ask that you solve at least 40% of the problems. You may choose a minimum of 4 problems and a maximum of 7 problems to solve and submit. Solving all of the problems in SET 1 will not provide any additional advantage.

For SET 2, please select one question out of the four questions and write your response.

Completing both sets will not give you any advantage, so you only need to submit work from one set.

SET 1

1.

A sequence of prime numbers $\{p_n\}$ is defined as follows: $p_1 = 2$, $p_2 = 3$ and for $n \geq 3$, p_n is the largest prime number that divides $p_{n-1} + p_{n-2} + 400$. The maximum possible value of p_{k+1}/p_k (for $k \geq 1$) is a/b (a and b are relatively prime positive integers). What is the value of $a+b$?

2.

There are 9 coins that are white on one side and black on the other. They are randomly lined up in a row so that five coins are arranged in black and four in white. When you flip the four leftmost coins in the array, the probability that the number of coins with black sides is a prime number is $\frac{q}{p}$ (p and q are relatively prime positive integers). If so, what is the value of $p+q$?

The figure below shows one example of a configuration for which the number of black coins is a prime number when the four leftmost coins are flipped.



3.

A sequence of positive integers $\{a_n\}$ is defined as follows: $a_1 = 1$ and for $n \geq 2$, $a_n = a_{n-1} + 2^{n-1}$.

What is the remainder when $a_1 + a_2 + a_3 + \dots + a_{100}$ is divided by 216?

4.

There are 4 difficult Math problems and there are 4 students who all willing to solve these problems. All students solve exactly two different math problems and also all problems are solved by exactly two different students. How many ways are there to match students with problems?

5.

A word of length 30, $ABABAB \dots AB$ (AB is repeated 15 times) is given. What are the last three digits of the number of different length 20 sub-words of this word? (A sub-word is a word we get by subtracting a few letters from the given word. For example, AAA is a length 3 sub-word of a length 5 word $ABABA$; if we subtract two B s from $ABABA$, then we get AAA . On the other hand, AAA is NOT a sub-word of $BAABB$; no matter which two letters we subtract, we can not get AAA from $BAABB$ since there are only two A s in $BAABB$.)

6.

As in the figure below, there is a digital clock which displays each digit of the time with seven segments on and off.





For this digital clock, the numbers from 0 to 9 are displayed as shown below.



Gabriel checked the time accurately with this digital clock. On the other hand, Isabella looked at the clock in a 180° rotated point of view, but was unaware that she is seeing the clock in this way. Eventually, Isabella mistook the time and Gabriel and Isabella checked different times. Find the number of different times that the clock make sense for both Gabriel and Isabella. For example, if the digital clock displayed 01:02, Gabriel will read the clock as 01:02, which makes sense, and Isabella will read the clock as 20:10, which also makes sense. (Note that the digital clock displays 08:10 for 8:10 a.m. but displays 20:10 for 8:10 p.m.)

7.

The starting pitchers for today's baseball game "Team Huston Astros vs Team Detroit Tigers" were Zack and Casey, respectively. Both teams' starting pitcher pitched well. For both teams, if the starting pitcher lost more than 3 runs in a single inning, then coaches would have replaced the pitcher. However, both starting pitchers earned a complete game. That is, both pitchers pitched the entire game. After a long game, detroit won the match and the final score was 2:6. However, as shown in the table below, the electronic display, on which the results of the competition are recorded, malfunctions and the scores earned by each team are not displayed for each inning except for the final score and a few innings. Find the total number of all different scoreboards possible for this match.

	1	2	3	4	5	6	7	8	9	R
 (Detroit)				1		0				6
 (Huston)	0					0				2

8.

Three points are randomly chosen on the circumference of a circle. Find the probability that all three points lies on some half-circumference.

9.

Point I and point G are the incenter and the centroid of $\triangle ABC$, respectively. If $\overline{AB} = 8$, $\overline{AC} = 6$, and $\overline{IG} \parallel \overline{BC}$, then what is the circumference of the triangle?

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Point I and point G are the incenter and the centroid of $\triangle ABC$, respectively. If $\overline{AB} = 8$, $\overline{AC} = 6$, and $\overline{IG} \parallel \overline{BC}$, then what is the circumference of the triangle?

SET 2

Please choose and answer one of the following four questions:

1. Present one math or physics problem and provide your unique solution. Then briefly explain why your solution is different from the typical approach.
2. Identify a social issue and create a mathematical or physical equation that could help solve this issue.
3. Write a brief research (up to 4000 words) connecting mathematics or physics with history, society, economics, environment, biology, etc.
4. Choose your favorite mathematician or physicist and explain one of their theories. Discuss how this theory is applied in today's society. Also, explain why you chose this particular scholar and theory. (up to 2500 words)