



1st Junior Penchick Online Mathematical Olympiad

Qualifying Stage, Paper A

(Ages 10 and below)

9 May 2026

INSTRUCTIONS AND INFORMATION

1. There are 20 questions to be answered in 90 minutes, split into two parts. The highest possible score for this contest is 48 points.

- *Part I (multiple-choice):* Each question has four choices (A, B, C, and D), and only one of these choices is correct. Submit the best answer to each question. Two points are given for a correct answer, for a total of 24 points for this section.
- *Part II (short answer):* Submit the best answer to each question. Three points are given for a correct answer, for a total of 24 points for this section.

For this paper, answers are either **whole numbers** or **fractions** (in the form of common fractions, mixed fractions, or decimals). All answers must be exact and in their simplest form; otherwise, they will be marked as incorrect. For example, if the answer is $\frac{5}{3}$, then the answers $\frac{5}{3}$, $1\frac{2}{3}$, and $1.\overline{6}$ are accepted (for the decimal, the answer is accepted as long as it is indicated that the decimal is repeating, for example $1.66666\dots$). However, the answer $\frac{10}{6}$ is not accepted because it is not simplified, and the answer 1.67 is not accepted because it is an estimation of the answer.

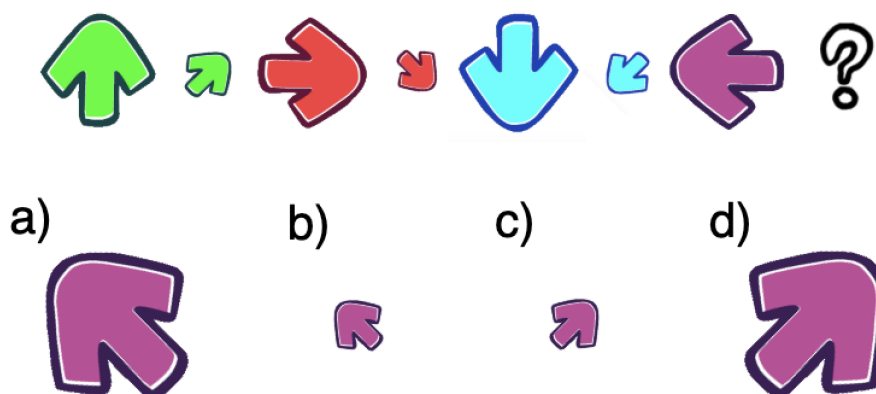
- 2. Always exhibit academic honesty during the contest.** Do not use calculators, protractors, graph paper, search engines, artificial intelligence, and other external applications, resources, or help while answering the contest. Rulers, compasses, and blank or lined paper are allowed. Cheating in any form is strictly prohibited and will be acted upon based on the violation system.
- 3.** Note that diagrams are **not necessarily drawn to scale**.
- 4.** The top 60% of contestants in this paper will be invited to take the **1st JPOMO Final Stage** on 27 June 2026.
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Enjoy the contest!

Part I: Multiple-Choice Questions

Each question has four choices (A, B, C, and D), and only one of these choices is correct. Submit the best answer to each question. Two points are given for a correct answer, for a total of 24 points for this section.

- Blizzy is standing on an infinite number line at position 0. She first waddles 5 units to the left, then 7 units to the right, then 3 units to the left, then 10 units to the right, and then 4 units to the left. After all of these moves, how far away from the starting position is she, and in what direction?
 - 5 to the right.
 - 5 to the left.
 - She is on the starting position.
 - None of the above.
- Renren is playing a game with a sequence of arrows that follows a consistent pattern. Which arrow comes next?



- Chubby has 8 bills consisting of 100-Peso and 20-Peso denominations, and 10 coins consisting of 10-Peso and 5-Peso denominations. Chubby has at least 2 of each type of bill and coin. What is the maximum total amount of money Chubby can have?
 - PhP 900
 - PhP 815
 - PhP 730
 - PhP 720
- Renren starts outside a room and goes in and out of it, opening the door once each time he passes through. After doing so many times, he is currently **inside** the room. Which of the following could represent the total number of times Renren has opened the door?
 - 6 times.
 - 7 times.
 - Both A and B are possible.
 - Cannot be determined.
- If $\spadesuit = 7$ and $\clubsuit = 9$, which of these is equivalent to $\spadesuit \times \clubsuit - \spadesuit - \clubsuit + 1$?
 - $(\clubsuit - 1) \times (\spadesuit - 1)$
 - $(\spadesuit \times \clubsuit - \spadesuit) - (\clubsuit - 1)$
 - $(\spadesuit \times \clubsuit) - (\clubsuit - 1)$
 - $(\spadesuit \times (\clubsuit - 1)) - (\spadesuit - 1)$

6. The Golden Penchick is baking cookies. To make enough cookies for 12 penchicks, he uses 300 grams of flour, 150 grams of sugar, 200 milliliters of milk, and 4 eggs. He then decides to invite 35 of his penguin friends round, and he plans for each penchick and himself to have 2 cookies. How many eggs does he need to bake enough cookies for all his guests?

(a) 4 (b) 8 (c) 12 (d) 24

7. Four identical pies are given to Pelican, Renren, Blizzy, and Chubby. Each person cuts their pie into equal slices and eats some of them:

- Pelican cuts the pie into 11 equal pieces and eats 6 of them.
- Renren cuts the pie into 12 equal pieces and eats 7 of them.
- Blizzy cuts the pie into 13 equal pieces and eats 8 of them.
- Chubby cuts the pie into 14 equal pieces and eats 9 of them.

Who eats the largest portion of a pie?

(a) Pelican (b) Renren (c) Blizzy (d) Chubby

8. The great mathematician Carl Friedrich Gauss was born on April 30. Given that in this year; May 9, 2026 is on a Thursday, on what day of the week will April 30 start in the year 2030?

(a) Monday (b) Tuesday (c) Wednesday (d) Thursday

9. A triangle has side lengths 5, 5, and 6. Find its area.

(a) 12 (b) 12.5 (c) 15 (d) 18

10. Renren simultaneously rolls 4 standard 6-sided dice. What is the probability his dice show all of the numbers 1, 2, 3, 4, each exactly once?

(a) $\frac{1}{24}$ (b) $\frac{1}{36}$ (c) $\frac{1}{54}$ (d) $\frac{1}{216}$

11. Blizzy picked some roses to give to Pelican, Chubby, and Renren. Blizzy first gave $\frac{1}{4}$ of the roses to Pelican. From the remaining roses, Blizzy then gave $\frac{3}{5}$ to Chubby. Finally, all the remaining roses were given to Renren. Which of the following could be the total number of roses Blizzy picked at the start?

(a) 25 (b) 30 (c) 36 (d) 40

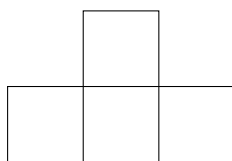
12. The fraction $\frac{1}{73}$ can be written in decimal form as $0.\overline{01369863}$. Given this, what is the numerator when $1.\overline{97260273}$ is written as a fraction in simplest form?
- (a) 144 (b) 145 (c) 289 (d) 291

Part II: Short-Answer Questions

Submit the best answer to each question. Three points are given for a correct answer, for a total of 24 points for this section.

All answers must be exact and in their simplest form; see the front page of this questionnaire for more details.

- Chubby, working hard, studies for $\frac{5}{9}$ hours today and adds $\frac{1}{9}$ hours each day onward. Pelican, hardly working, studies $\frac{4}{9}$ hours today and cuts $\frac{1}{9}$ hours each day instead. Solve for the total number of hours they studied together today and over the next three days.
- An 8×8 chessboard has columns labeled A through H and rows labeled 1 through 8. Each square is identified by a letter–number pair. How many squares have a vowel as the column label and a prime number as the row label?
- Yuler has a bunch of balloons. Firstly, he gave $\frac{1}{2}$ to Pelican, then $\frac{1}{10}$ of the remaining to Renren. He gives a single balloon to Blizzy. Penrick unfortunately pops $\frac{1}{4}$ of the remaining balloons. Yuler finally lets go of 5. If Yuler only has 1 left, how many did he originally have, if each penchick gets or pops a whole number of balloons?
- The figure shown is a T-tile formed by four congruent unit squares. What is the least number of such T-tiles required to tile a larger square with no overlaps or gaps?



- A Megaminx is a puzzle whose shape is a convex polyhedron. Each face is a congruent regular pentagon, and exactly three faces meet at every vertex. The area of one face is 15 units squared. Find the total surface area of the Megaminx.
- Putos sell in packs of four or six. Chubby multiplies the number of putos in every pack and got 3456. How many putos did Chubby buy?
- The sum of two different positive perfect squares is a two-digit number divisible by 3. If one of the perfect squares is 36, then what is the product of both perfect squares?

8. Penchick is building a house, and the base of the house is a trapezoid $ABCD$ right angled at B and C , but he is unsure about what the lengths AB , BC , CD should be. So, he rolls three 6-sided dice: the first one to decide the length of AB , the second to decide the length of BC , and the last one to decide the length of CD . What's the probability that the area of the trapezoid will be an integer?

Answer Key

Part I: Multiple-Choice Questions

1. a

5. a

9. a

2. b

6. c

10. c

3. c

7. d

11. d

4. b

8. b

12. a

Part II: Short-Answer Questions

1. 4

5. 180

2. 8

6. 26

3. 20

7. 324

4. 4

8. $\frac{3}{4}$