



EPSILON INDIA 2025

Algebra Assessment for Epsilon India 2025

- The problems below will help us to understand your foundations in Algebra. It is important that you have a good understanding of the topics below to be able to follow the curriculum in the camp.
- There is no time limit. If you are not familiar with any of the topics, you can learn it and then attempt the questions. Khan Academy is a free resource that is very useful for sharpening your skills.
- Please print this sheet and write your answers in the space provided. Unlike the Exploration Problems, the space provided should be enough to write the answers.
- The work must be completed on your own. Do not use a calculator!

Sending the forms to us:

Priority given to candidates applying before February 10, 2025. Registrations open till spots left. Once you have completed the 'Algebra Assessment' and 'Exploration Problems':

- Please go to the '**How to Apply**' section of www.epsilonindia.org and follow the instructions to complete the Application process on our student app. Parents can help with the Application process but the applicant must work independently on the 'Algebra Assessment' and 'Exploration Problems.' Note that the completed tests have to be scanned and uploaded as a single pdf into the student app.
- Please also send the scanned work on both the 'Algebra Assessment' and 'Exploration Problems' as attachments to epsiloncampindia@gmail.com

Certification by Student and Parent

This certification is to be completed in handwriting shortly before submission, after you have completed your work whether you finished all the problems.

I, _____ (write name by hand), applicant to Epsilon India 2025, certify that this submission is entirely my own work. No one has helped in any manner with my work on any problem in the assessment, nor have I even shown my work to anyone prior to submission. I understand that this is for my own benefit. I understand that if Epsilon India finds that I have not been truthful in this, that I would be grounds for denying admission or discontinue access to the camp material with no refund if Epsilon Camp India 2025 is already in session.

To affirm this Certification, after finishing my solutions, I have signed my name, my parent/guardian has signed their name and dated this document, as witness.

Applicant signature: _____

Parent or Guardian name: _____

Signature: _____ Date: _____



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- 1) Round 15923.8745 to the nearest hundred.

- 2) Round 23496.4291 to the nearest thousandth.

- 3) A turtle takes 0.9 hours to walk 1.23 km. How far will it walk in 3.6 hours?

- 4) A watermelon weighs 3.96 kilograms. After cutting into slices, if each slice weighs 13.2 grams, then how many slices be obtained?

- 5) A merchant sold an item for ₹920 and made a 60% profit. What was the original cost price?



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6) $14 - 2x = 10$. Find the value of x .

7) Evaluate $4\sqrt{4} - 4^4$ using the BODMAS rule.

Note: This problem is like the famous four fours problem, where people find what numbers, they can make with exactly 4 fours and the BODMAS symbols.

8) Lily's magical cookie recipe calls for $0.\overline{6174}$ of an ingredient, but she needs your help - can you convert this repeating decimal into a fraction so she can bake the perfect batch of cookies?

9) Given $\frac{3}{8} + \frac{1}{4} = x$:

- Express x as a percentage.
- Express x as a fraction.



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10) If a father's age is x and the daughter's age is y , how many years later will the father's age be thrice the daughter's age?

11) Simplify $\frac{(x^5y^6)^2}{x^8y^9} (x^3y^4)$.



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- 12) Solve $\frac{3x-6}{2} \geq \frac{4x-7}{3}$ and graph the solution set (Attach the scanned image of the graph paper).
- 13) Scenario: Jack wants to make sure his pet fish is happy by keeping the water at the right temperature. He wants the water to be about 5°C . But he knows the temperature can vary a bit. Jack wants the temperature to always stay close to 5°C allowing a variation of $\pm 2.5^{\circ}\text{C}$.
- Write an inequality to represent this situation.
 - Solve the inequality from a) and graph the solution set.



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14) Solve the following system of equations by graphing. Check the answer algebraically. $3x - 7y + 1 = 0$ and $9x - 19y + 1 = 0$.

15) Express $(x + 2)^2 + (x - 3)^2$ in the standard form.

16) Use the long division algorithm to find the quotient and remainder for $\frac{(x^2 - 5x + 6)(x^2 + 4)}{x^4 - 9}$.



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17) Simplify $\frac{(2x^2-8)(2x^2-5x+2)}{(x-2)(x+2)}$.



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18) Solve $6x^2 - 18x + 12 = 0$.