



EPSILON INDIA 2022

Algebra Assessment for Epsilon India 2022

- The problems below will help us to understand your foundation 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 sufficient to write down your answers.
- The work has to be completed on your own. Do not use a calculator!

Sending the forms to us:

Priority is given to candidates applying before February 22nd, 2022. Registrations open till spots are 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. Parents can help with the application process but the applicant has to work independently on the ‘Algebra Assessment’ and ‘Exploration Problems’.
- Please send the work on both the ‘Algebra Assessment’ and ‘Exploration Problems’ as attachments to an **email** 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 or not you finished all the problems.

I, _____ (write name by hand), applicant to Epsilon India 2022, 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 sending me home with no refund if Epsilon Camp 2022 is already in session.

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

Applicant signature: _____

Parent or Guardian name: _____



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Signature: _____ Date: _____

1) Round 12345. 6789 to the nearest thousand.

2) Round 12345.6789 to the nearest hundredth.

3) $24.7 \times 8 =$ 4) $\frac{784.784}{0.37} =$

5) The profit that a shopkeeper earned in percentage by selling a shirt at INR 750 was 25%. What was the cost price of the article?

6) $5\frac{2}{7} - x = 2\frac{5}{9}$. Find the value of x .

7) Evaluate $5 - 5 \times 5 \div 5^5$ using the BODMAS rule.

8) Convert $0.\overline{012}$ to a fraction.



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- 9) Express $8.\overline{3}$ as (a) percentage and (b) fraction.
- 10) If a father is x and the daughter is y , how many years later will the father's age be twice the daughter's age in terms of x and y ?
- 11) Simplify $(8a^4b^{-3})^2(2a^{-4}b^5)^3$
- 12) The area of a quadrilateral is 30. What type of quadrilateral (square, rhombus, rectangle, parallelogram or trapezium) should it be, if its perimeter has to be minimum? Why?



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13) Solve $4x + 3 \geq 8x - 5$ and graph the solution set (Attach the graph paper or its scanned image).

14) Solve $|2x - 3| > 2$ and graph the solution set.

15) Solve the following system of equations by graphing. Check the answer algebraically. $x - 3y + 3 = 0$ and $-4x + 3y + 6 = 0$.

16) Express $(7x + 4)(3x^2 - 5x + 6)$ in standard form.

17) Use the long division algorithm to find the quotient and remainder for $\frac{2x^3 - 5x^2 - 14x + 8}{x - 4}$.



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18) Find all x such that $\frac{x^2 - x - 6}{2x^2 + x - 6} = 0$

19) Solve $24y^2 - 8y - 10 = 0$.