



ASSAM ACADEMY OF MATHEMATICS

ASSAM MATHEMATICS OLYMPIAD 2024

1st September 2024 :: 10 am to 1 pm

Classes V-VI, VII-VIII, IX-XI

Centre		Roll No.							
For Office Use Only			Centre Code	Category No.		Sl. No.			

Application form to be submitted to the Centre Coordinator with fees of ₹ 150/-

1. Full Name

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Put a Tick Mark ✓

MALE		FEMALE		OTHER	
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2. Name of the school

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Complete address of the school

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City / Town/ Village

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District

																		PIN	
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3. Parent / Guardian's name

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4. Class (Put a Tick Mark ✓)

V		VI		VII		VIII		IX		X		XI	
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5. Category (Put a Tick Mark ✓)

I (Classes V-VI)		II (Classes VII-VIII)		III (Classes IX-XI)	
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6. Mobile Number

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Email ID

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7. Centre of choice *

Code		Name																	
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*Choose from the list of centres given in the next page

Signature of the applicant

Endorsement from the school

This is to certify that the applicant
is a student of Class in the said school.

Signature and Seal of Principal / Class Teacher

Fees : ₹ 150/-
Rupees one hundred
and fifty only

ASSAM ACADEMY OF MATHEMATICS
ASSAM MATHEMATICS OLYMPIAD 2024
1st September 2024 :: 10 am to 1 pm
ADMIT CARD

Scan the code for
Study Materials



Name :

Category : Venue

Centre		Roll No.							
For Office Use Only			Centre No.	Category No.		Sl. No.			

Last Date of Submission: 20th August 2024.

Collect the Admit Card at the time of submission.

**Please bring (a) Admit Card and (b) School/College Identity Card
to the exam hall. For syllabus and past question papers, visit the
AAM website www.aamonline.org.in or scan the QR code.

Signature of Centre Coordinator

..... Centre

Assam Mathematics Olympiad 2023
List of Centre Coordinators

Code	Centre	Centre Coordinator	Institution with address	Mobile No.	Email
1.	Baihata Chariali	Mr. Bipul Sarma	Ramanujan Academy, Baihata Chariali	9864044668	ramanujanacademybc@gmail.com
2.	Bajali	Dr. Manmohan Das	Bhattadev University, Bajali	9435736592	mdas.bajali@gmail.com
3.	Barnagar	Dr. Bulendra Limboo	Barnagar College, Barnagar	8638929176	bulendralimboo@barnagarcollege.ac.in
4.	Barpeta	Dr. Brojen Das	M.C. College, Barpeta	9435109940	brojen.das@icloud.com
5.	Basugaon	Dr. Ardhendu Kumar Nandi	Basugaon College, Chirang, BTR	8822649132	ardhendukumarnandi5@gmail.com
6.	Bijni	Mr. Abdul Kader Hussain	Bijni College, Bijni	9678108756	hussainak1967@gmail.com
7.	Biswanath Chariali	Dr. Arun Chaliha	Biswanath College, Biswanath Chariali	9435506224	arunchaliha@gmail.com
8.	Bokajan	Dr. Tazmin Sultana	Eastern Karbi Anglong College, Sarihajan	9678246059	tazmingu@gmail.com
9.	Bokakhat	Dr. Bidyut Boruah	CNB College, Bokakhat	9435235079	bboruahbkt@gmail.com
10.	Boko	Dr. Dipankar Sarma	J.N. College, Boko	9435340747	dipankjncmath@gmail.com
11.	Bongaigaon	Ms. Chumi Ray	Birjhora Mahavidyalaya, Bongaigaon	7002664051	chumi.ray23@gmail.com
12.	Chabua	Dr. Niky Baruah	D.D.R. College, Chabua, Dibrugarh	9864225098	niky_baruah@yahoo.com
13.	Chapar	Mr. Kiran Ch. Ray	Dwarshila High School, Chapar	7086990855	kiranchroy3@gmail.com
14.	Dhakuakhana	Mr. Tabendra Nath Das	Dhakuakhana College, Dhakuakhana	9401168235	tabendra2@gmail.com
15.	Dhemaji	Mr. Abhijit Koch	Dhemaji College, Dhemaji	9954666609	abhijitkonch100@gmail.com
16.	Dhubri	Mr. Fahim Sayed	B.N. College, Dhubri	7099315180	fahim.sayed38@gmail.com
17.	Dibrugarh	Dr. Priya Dev Goswami	DHSK College, Dibrugarh	9435473872	priyadevgoswami@yahoo.co.in
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19.	Dudhnoi	Dr. Bidyut Kalita	Dudhnoi College, Dudhnoi	9957399694	kbidyut73@yahoo.in
20.	Duliajan	Mr. H. K. Borah	Delhi Public School, Duliajan	9435068680	hkbdjn@gmail.com
21.	Goalpara	Dr. Bipul Chakraborty	West Goalpara College, Goalpara	9435001957	bipulchakraborty1@gmail.com
22.	Golaghat	Mr. Siddhartha Protim Gogoi	Golaghat Polytechnic, Furkating	7896624087	gogoisiddhartha68@gmail.com
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24.	Gossaigaon	Dr. Manoj Kumar Sah	Gossaigaon College, Gossaigaon	7002209842	manojkumarsah229@gmail.com
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27.	Guwahati C	Dr. Biren Das	Arya Vidyapeeth College, Aryanagar	9864067185	biren_ave@rediffmail.com
28.	Guwahati D	Ms. Kalyani Patgiri	Assam Jatiya Bidyalaya, Noonmati	9864540644	kpatgiri@gmail.com
29.	Hailakandi	Dr. Abdul Hannan Choudhury	Srikishan Sarda College, Hailakandi	6000636404	ahchoudhury27@yahoo.com
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38.	Majuli	Dr. Suwag Moni Das	Jengraimukh College, Majuli	9707703333	suwagmoni1.618@gmail.com
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40.	Mirza	Mr. Prasanta Kalita	D.K. College, Mirza	9957416882	pkalita6969@gmail.com
41.	Morigaon	Dr. Ranjit Kumar Kalita	Morigaon College, Morigaon	9435064252	kalitaranjit@yahoo.com
42.	Nagaon	Dr. Padmeswar Senapati	Nowgong College, Nagaon	7002561724	padmeswar7@gmail.com
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46.	North Lakhimpur	Mr. Dibyajyoti Gogoi	North Lakhimpur College, North Lakhimpur	7002584308	gogoidibyajyoti701@gmail.com
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51.	Sibsagar	Dr. Dipjyoti Sarma	Sibsagar Commerce College, Sibsaagar	9854282728	dipjyoti25@yahoo.com
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56.	Tinsukia	Mr. Debakanta Buragohain	Tinsukia College, Tinsukia	9706209762	debagohain@gmail.com

Syllabus of Assam Mathematics Olympiad Assam Academy of Mathematics

Category - I (Classes V - VI)

- Number system. Concepts and problems related to place value and face value in the decimal number system. Use of the symbols =, < and >. Estimation of numbers, identifying smaller, larger etc. Natural numbers, whole numbers, integers. Properties of numbers (commutative, associative, distributive, additive identity, multiplicative identity, additive inverse, multiplicative inverse). Representation of integers on the number line.
- Statement problems involving the basic rules of addition, subtraction, multiplication and division. Conversions of units of length & mass (from the larger to the smaller units and vice-versa), Simplification of brackets, multiples and factors, divisibility rules and related problems. Even numbers, odd and prime numbers, composite numbers, co-prime numbers. Factorisation of numbers. HCF and LCM, prime factorization and division methods for HCF and LCM, the property $LCM \times HCF = \text{product of two numbers}$.
- Fractions, representation of fractions (pictorially and on number line), fraction as a division, proper, improper & mixed fractions, equivalent fractions, comparison of fractions, addition and subtraction of fractions. Idea of a decimal fraction, place value in the context of decimal fraction, inter conversion of fractions and decimal fractions, word problems involving arithmetic operations on decimals. Ratio and Proportion, Unitary method, statement problems.
- Line, line segment, ray. Open and closed figures. Interior and exterior of closed figures. Angles - acute, obtuse, right, straight, reflex, complete and zero angle. Triangles — vertices, sides, angles, altitude and median. Classification of triangles (on the basis of sides and of angles). Quadrilaterals — sides, vertices, angles, diagonals, adjacent sides and opposite sides. Trapezium, parallelogram, rectangle, square, rhombus. Circles — centre, radius, diameter, arc, sector, chord, segment, semicircle, circumference. Intersecting and perpendicular lines, parallel lines
- Knowledge of 3-D shapes: Cubes, Cuboids, cylinder, sphere, cone, prism, pyramid and tetrahedrons. Symmetry of geometrical shapes, letters, words, numbers. Constructions (using straight edge, protractor, compasses) - line segment, circle, perpendicular bisector, angles, angle bisection, angle equal to a given angle (using compass), drawing a line perpendicular to a given line from a point on the line and from a point outside the line.
- Areas and perimeters of standard geometrical figures - triangle, rectangle, rhombus, square, parallelogram, circle, trapezium. Shapes of different kinds with the same perimeter/area. Patterns of geometrical shapes and designs.
- Data handling, collection and organisation of data in tally bars and a table, making bar graphs for given data interpreting bar graphs.

Category - II (Classes VII - VIII)

- Properties of integers (including identities for addition & multiplication, commutative, associative, distributive). Word problems including integers. Rational numbers - representation on number line, properties of rational numbers, operations on rational numbers, finding rational numbers between two rational numbers statement problems involving rational numbers. Number puzzles and games.
- Laws of exponents with integral powers. Square and Square roots. Square roots using factor method and division method for numbers. Cubes and cubes roots. Estimating square roots and cube roots.
- Algebraic expressions involving one or two variables. Constants, coefficients, powers, like and unlike terms. Polynomials degree of polynomials, addition, subtraction of polynomials. Algebraic identities, factorisation of polynomials, division of polynomials.
- Problems on percentages, profit & loss, overhead expenses, discount, ratio and proportion, unitary method, simple interest, compound interest, direct and inverse variation, time & work problems.
- Pairs of angles (linear pair, supplementary, complementary, adjacent, vertically opposite). Properties of parallel lines with transversal (alternate, corresponding, interior, exterior angles).

Angle sum property of triangle, exterior angle property, triangle inequality of sides, Pythagoras Theorem. Angle sum property of quadrilateral. Properties of rectangles, squares, rhombus, parallelograms.

- Reflection and rotational symmetry. Counting vertices, edges & faces & verifying Euler's relation for 3-D figures with flat faces (cubes, cuboids, tetrahedrons, prisms and pyramids). Congruence of triangles, SSS, SAS, AAS, ASA and RHS criteria. Construction of triangles, parallel lines, quadrilaterals using ruler and compass.
- Areas of a square, rectangle, triangle, parallelogram and circle, trapezium, area between two rectangles and two concentric circles, volume of a cube, cuboid and cylinder, Surface area of a cube, cuboid, cylinder, related problems.
- Basic ideas of set theory - types of sets, subsets, null set, finite and infinite sets, union and intersection of sets, complement of a set. Principles of counting - addition rule, subtraction rule, multiplication rule and division rule. Permutation and combination of objects, related problems.
- Mean, median and mode of ungrouped and grouped data. Constructing and interpreting bar-graphs. Simple Pie charts with reasonable data numbers.

Category - III (Classes IX - XI)

- Number systems, rational numbers, irrational numbers, real numbers. Number theory - well ordering principle, division algorithm, divisibility theory, GCD and LCM, Euclidean algorithm, Diophantine Equation, prime numbers and their properties, fundamental theorem of arithmetic, theory of congruences, linear congruences, Fermat's little theorem, Wilson's theorem. Number theoretic functions τ , σ and Euler's ϕ function, Euler's theorem. Greatest integer function.
- Sets, relations and functions. One-one functions, onto functions, bijections, inverse of a bijection. Counting principles - addition rule, subtraction rule, multiplication rule, division rule. Permutation and combination of distinct objects. Permutations and combinations with repetitions. Inclusion-Exclusion principle. Pigeonhole principle.
- Polynomials in one variable, coefficients, terms, degree of a polynomial. Constant, linear, quadratic, cubic polynomials; monomials, binomials, trinomials etc. Factors and multiples. Zeros/roots of a polynomial/equation. Relation between roots and coefficients. Remainder Theorem, Factor Theorem and related problems. Algebraic identities involving several variables. Linear equations in two variables, the cases of unique solution, no solution and infinitely many solutions. Quadratic equations. Statement problems.
- Arithmetic, geometric and harmonic progressions. Inequalities involving arithmetic mean, geometric mean and harmonic mean. Cauchy Schwartz inequality.
- Euclidean Geometry, lines and angles, triangles, quadrilaterals, circles, and their properties, congruence and similarity of triangles. Mensuration - area, perimeter, surface area and volumes of standard geometrical objects.

Recommended books

- NCERT / SEBA / AHSEC recommended textbooks.
- Elementary Number Theory; David M. Burton; McGraw Hill Education.
- Introductory combinatorics; Richard A. Brualdi; Pearson Education Inc.
- Mathematical Circles; Dmitri Fomin, Sergey Genkin, Ilia Itenberg; Universities Press.
- A Moscow Math Circle; Sergey Dorichenko; Universities Press.
- Functional Equations; B.J.Venkatachala; Prism Books Pvt. Ltd.
- International Mathematical Olympiad (Volumes I to III); Istvan Reiman; Anthem Press.
- Problem Solving Strategies; Arthur Angel; Springer.
- Challenge and thrill of pre-college mathematics; V.K.Krishnamurthy et.al.; New Age International Publishers.

* *The students can retain the syllabus copy while submitting the form.*