



ALL INDIA COUNCIL FOR TECHNICAL SKILL DEVELOPMENT

अखिल भारतीय तांत्रिक कौशल्य विकास परिषद

Syllabus

Aryabhata National Maths Competition

Group 1 & Group 2

- **Numbers**
 - Digit Numbers
 - Representing 1000 On The Abacus
 - Place Value
 - Place Value And Expanded Form
 - Ordering Of Numbers
 - Odd And Even Numbers
 - Successor And Predecessor
 - Roman Numerals

- **Addition**
 - Adding 4-Digit Numbers Without Carry Over
 - Digit Addition With Carry Over
 - Addition Of Three Or More Numbers
 - Properties Of Addition

- **Subtraction**
 - Subtracting 4-Digit Numbers Without Borrowing
 - Digit Subtraction With Borrowing
 - Properties Of Subtraction



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-
- Addition And Subtraction

 - **Multiplication**
 - Multiplying 3- And 4-Digit Numbers By A 1-Digit Number
 - Properties Of Multiplication
 - Multiplying By 10, 20, 30, .., 90
 - Multiplying By 100, 200, , 900
 - Multiplication Tables 11-20
 - Distributive Property Of Multiplication
 - Multiplying By A 2-Digit Number

 - **Division**
 - Properties Of Division
 - Dividing A 2-Digit Number By A 1-Digit Number
 - Dividing A 3-Digit Number By A 1-Digit Number
 - Division With Remainder
 - Relationship Between Divisor, Dividend, Quotient And Remainder

 - **Fractions**
 - Fraction On The Number Line
 - Comparison Of Fractions
 - Equivalent Fractions
 - Fraction Of Collection Of Objects
 - Addition Of The Fraction With The Same Denominator
 - Addition Of Fractions On The Number Line
 - Subtraction Of Fractions With The Same Denominator
 - Subtraction On The Number Line

 - **Money**



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- Conversion Of Rupees Into Paise
 - Conversion Of Paise To Rupees
 - Addition Of Money
 - Subtraction Of Money
 - Multiplication Of Money
-
- **Metric Measures**
 - Length
 - Conversion Of Length
 - Addition Of Length
 - Subtraction Of Length
 - Weight
 - Conversion Of Weight
 - Addition Of Weight
 - Subtraction Of Weight
 - Volume And Capacity
 - Conversion Of Volume And Capacity
 - Addition Of Volume And Capacity
 - Subtraction Of Volume And Capacity
-
- **Time**
 - The Calendar
 - The Clock
 - A.M And P.M
 - Conversion Of Time
-
- **Geometry**
 - Point
 - Line
-



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- Line Segment
 - Measuring Line Segments
 - Drawing Line Segments
 - Plane Figures
 - Solid Shapes
 - Faces, Edges And Corners
-
- **Pictographs**
 - Pictographs
-
- **Decimals**
 - Extending The Place Value Chart To Tenths
 - Extending The Place Value Chart Hundredths And Thousandths
 - Converting Fractions Into Decimals
 - Converting Decimals Into Fractions
 - Equivalent Decimals
 - Expanded Form Of Decimals
 - Comparing Decimals
 - Addition Of Decimals
 - Subtraction Of Decimals
 - Use Of Decimals
-
- **Metric Measures**
 - Length
 - Mass
 - Capacity
 - Converting From Higher To Lower Units
 - Converting From Lower To Higher Units
-



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-
- Addition And Subtraction Of Metric Measures
 - Subtraction
 - Estimation
-
- **Time**
 - Units Of Time
 - Conversion Of Time - Hours And Minutes
 - Conversion Of Time - Minutes And Seconds
 - Conversion Of Time - Bigger Units
 - Addition Of Time
 - Subtraction Of Time
 - The 24 - Hour Clock
 - Time Intervals
 - Calendar
-
- **Money, Profit And Loss**
 - Money
 - Conversion Of Rupees And Paise
 - Addition And Subtraction Of Money
 - Multiplication And Division Of Money
 - Profit And Loss
 - Finding Selling Price
 - Finding Cost Price
-
- **Geometry**
 - Angle
 - Types Of Angles
 - Constructing Angles
 - Closed Figures
-



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-
- Circles
 - Chord Of A Circle
 - Arc And Semicircle
 - Construction Of Circles
 - Using A Compass To Draw A Circle
 - Interior And Exterior Of A Circle
 - Symmetry
-
- **Perimeter And Area**
 - Perimeter
 - Area
-
- **Bar Graphs**
 - Bar Graph
-
- **More About Numbers**
 - Rounding Numbers
 - Roman Numerals
-
- **Percentages**
 - Expressing Fractions As Percentages
 - Converting Percentages To Fractions
 - Expressing Percentages As Decimals
 - Expressing Decimals As Percentages
 - Finding Percentage Of A Number
 - Money And Metric Measures As Percentages
 - Why Do We Use Percentages?
-
- **Averages**
 - Averages
-



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-
- **Profit And Loss**
 - Profit And Loss Expressed As A Percentage
 - Finding The Selling Price When Profit Or Loss Percent Is Given

 - **Simple Interest**
 - Rate Of Interest

 - **Unitary Method**
 - Unitary Method

 - **Bills**
 - Bills

 - **Time**
 - Revision
 - Finding Number Of Days From One Date To Another
 - Railway And Air Timings
 - Time Intervals

 - **Temperature**
 - Body Temperature
 - Weather - Hot Or Cold
 - Converting From Celsius To Fahrenheit
 - Converting From Fahrenheit To Celsius

 - **Metric Measures**
 - Length
 - Mass
 - Capacity
 - Converting From Higher To Lower Units
-



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-
- Conversion Of Lower Units To Higher Units
 - Addition And Subtraction Of Metric Measures
 - Multiplication Of Metric Measures
 - Division Of Metric Measures
-
- **Area And Volume**
 - Area
 - Finding Area When Whole Squares Are Not Covered
 - Area Of Irregular Shapes
 - Area Of A Rectangle Or Square
 - Finding Length Or Breadth
 - Perimeter
 - Volume
 - Volume Of A Cube
 - Volume Of A Cuboid
-
- **Geometry - Lines And Angles**
 - Concept Of A Plane
 - Angles
 - Measuring Angles
 - Constructing Angles
 - Types Of Angles
 - Constructing Angles Using Compass And Ruler
 - Types Of Lines
-
- **Geometry - Circles, Triangles And Nets**
 - Circles
 - Chord Of A Circle
 - Arc And Semicircle
-



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अखिल भारतीय तांत्रिक कौशल्य विकास परिषद

- Construction Of Circles
 - Using A Compass To Draw A Circle
 - Interior And Exterior Of A Circle
 - Circumference
 - Triangles
 - Types Of Triangles
 - Nets Of Solids
-
- **Algebra**
 - What Is Algebra ?
 - Constants And Variables
 - Addition And Subtraction
 - Multiplication And Division
 - Coefficients
 - Algebraic Expressions
 - Value Of An Algebraic Expression
 - Like And Unlike Terms
 - Simplification
-
- **Data Handling**
 - Introduction
 - Recording Data
 - Organisation Of Data
 - Pictograph
 - Interpretation Of A Pictograph
 - Drawing A Pictograph
 - A Bar Graph
-
- **Mensuration**



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-
- Introduction
 - Perimeter
 - Perimeter Of The Triangle
 - Area
-
- **Algebra**
 - Introduction
 - Matchstick Patterns
 - The Idea Of A Variable
 - More Matchstick Patterns
 - More Examples Of Variables
 - Use Of Variables In Common Rules
 - Expressions With Variables
 - Using Expressions Practically
 - What Is An Equation?
 - Solution Of An Equation
-
- **Ratio And Proportion**
 - Introduction
 - Ratio
 - Proportion
 - Unitary Method
-
- **Symmetry**
 - Symmetry
 - Making Symmetric Figures : Ink-Blot Devils
 - Figures With Two Lines Of Symmetry
 - Figures With Multiple (More Than Two) Lines Of Symmetry
 - Reflection And Symmetry
-



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अखिल भारतीय तांत्रिक कौशल्य विकास परिषद

-
- **Practical Geometry**
 - The Circle
 - A Line Segment
 - Perpendiculars
 - Angles
 - **Data Handling**
 - Introduction
 - Collecting Data
 - Organization Of Data
 - Representative Values
 - Arithmetic Mean
 - Mode
 - Median
 - Use Of Bar Graphs With A Different Purpose
 - Chance And Probability
 - **Simple Equations**
 - A Mind-Reading Game!
 - Setting Up Of An Equation
 - Review Of What We Know
 - What Equation Is?
 - More Equations
 - From Solution To Equation
 - Applications Of Simple Equations To Practical Situations
 - **Lines And Angles**
 - Introduction
 - Related Angles
-



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-
- Pairs Of Lines
 - Checking For Parallel Lines
-
- **The Triangle And Its Properties**
 - Introduction
 - Medians Of A Triangle
 - Altitudes Of A Triangle
 - Exterior Angle Of A Triangle And Its Property
 - Angle Sum Property Of A Triangle
 - Two Special Triangles : Equilateral And Isosceles
 - Sum Of The Lengths Of Two Sides Of A Triangle
 - Right-Angled Triangles And Pythagoras Property
-
- **Congruence Of Triangles**
 - Introduction
 - Congruence Of Plane Figures
 - Congruence Among Line Segments
 - Congruence Of Angles
 - Congruence Of Triangles
 - Criteria For Congruence Of Triangles
 - Congruence Among Right-Angled Triangles
-
- **Comparing Quantities**
 - Introduction
 - Equivalent Ratios
 - Percentage Another Way Of Comparing Quantities
 - Use Of Percentages
 - Prices Related To An Item Or Buying And Selling
 - Charge Given On Borrowed Money Or Simple Interest
-



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अखिल भारतीय तांत्रिक कौशल्य विकास परिषद

• Rational Numbers

- Introduction
- Need For Rational Numbers
- What Are Rational Numbers?
- Positive And Negative Rational Numbers
- Rational Numbers On A Number Line
- Rational Numbers In Standard Form
- Comparison Of Rational Numbers
- Rational Numbers Between Two Rational Numbers
- Operations On Rational Numbers

• Practical Geometry

- Introduction
- Construction Of A Line Parallel To A Given Line, Through A Point Not On The Line
- Construction Of Triangles
- Constructing A Triangle When The Lengths Of Its Three Sides Are Known (Sss Criterion)
- Constructing A Triangle When The Lengths Of Two Sides And The Measure Of The Angle Between Them Are Known. (Sas Criterion)
- Constructing A Triangle When The Measures Of Two Of Its Angles And The Length Of The Side Included Between Them Is Given. (Asa Criterion)
- Constructing A Right-Angled Triangle When The Length Of One Leg And Its Hypotenuse Are Given (Rhs Criterion)

• Perimeter And Area



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-
- Introduction
 - Squares And Rectangles
 - Area Of A Parallelogram
 - Area Of A Triangle
 - Circles
 - Conversion Of Units
 - Applications
-
- Algebraic Expression
 - Introduction
 - How Are Expressions Formed?
 - Terms Of An Expression
 - Like And Unlike Terms
 - Monomials, Binomials, Trinomials And Polynomials
 - Addition And Subtraction Of Algebraic Expressions
 - Finding The Value Of An Expression
 - Using Algebraic Expressions Formulas And Rules
-
- Exponents Or Powers
 - Introduction
 - Exponents
 - Laws Of Exponents
 - Miscellaneous Examples Using The Laws Of Exponents
 - Decimal Number System
 - Expressing Large Numbers In The Standard Form
-
- Symmetry
 - Introduction
 - Lines Of Symmetry For Regular Polygons
-



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-
- Rotational Symmetry
 - Line Symmetry And Rotational Symmetry
-
- Visualizing Solid Shapes
 - Introduction: Plane Figures And Solid Shapes
 - Faces, Edges And Vertices
 - Nets For Building 3-D Shapes
 - Drawing Solids On A Flat Surface
 - Viewing Different Sections Of A Solid
 - A Third Way Is By Looking At It From Certain Angles To Get Different Views
-
- HCF & LCM
 - Hcf
 - Lcm
 - Prime Factorisation
 - Hcf By Prime Factorisation
 - Lcm By Prime Factorisation
 - Lcm By Division Method
-